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1 *Powerful Cord Structure* built up of hard-twisted, high tensile strength cords, impregnated with live rubber compound to prevent chafing and heating.

2 *Thick, Resilient Cushion* of rubber supports cord structure at correct pitch line . . . absorbs shocks . . . helps dissipate heat.

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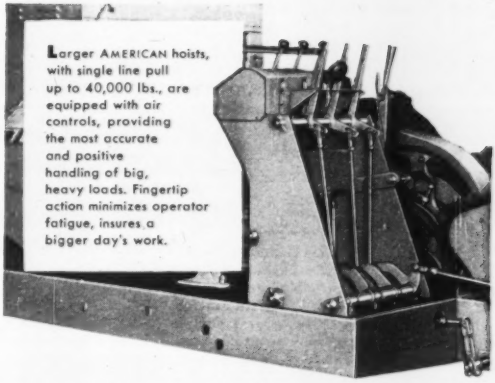
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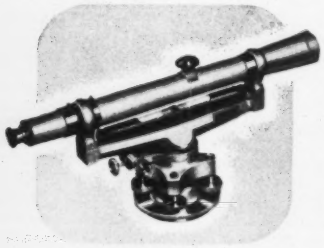

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ENGINEERING NEWS-RECORD

VOLUME 143 OCTOBER 20, 1949 NO. 16

WALDO G. BOWMAN
Editor

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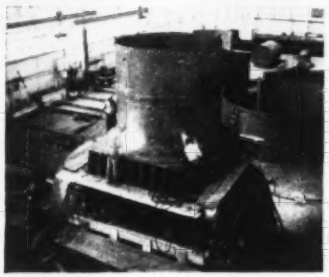
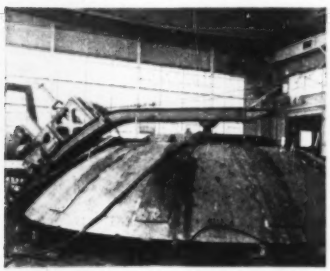
SURGE Tanks at Fort Peck



1) Each surge tank has a riser pipe which is connected to the penstods by a specially-reenforced saddle flange. The view above shows this flange being welded to the riser pipe.



2) A special machine, designed and built by CB&I is used to ream rivet holes in the surge tank bottom plates.

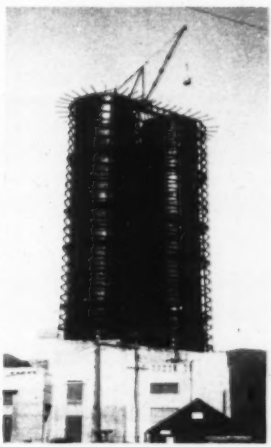
3) The bottom of one of the surge tanks is shown fitted up in the shop to check accuracy of fabrication before shipping.

. . . built to absorb momentum equal to that of a 45,000-ton battleship under way!

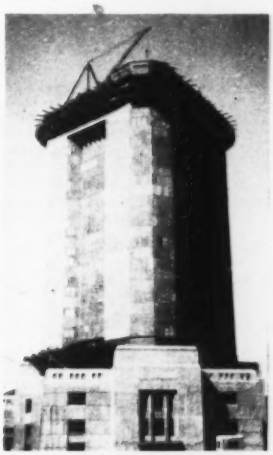
And "under way" means that the battleship would be traveling about 20 m.p.h. The momentum these surge tanks absorb is caused by water flowing from behind the dam to the Fort Peck power house through a tunnel 5,667-ft. **long.** The use of surge tanks to absorb this force avoids excessive penstock pressures or any hydraulic instability resulting from a sudden change in the load on the turbines.

Strenuous service is only part of this surge tank story. Of even greater significance to you is the story of the building skill behind these tanks. Some of the story is brought to light in the accompanying illustrations. The rest—design, erection, and testing—is a record of cooperation with U. S. Engineers. Significantly, model and field test studies proved that the basic design and fabricating methods were sound.

The surge tank installation at Fort Peck is a dramatic testimonial of the ability of CB&I to build steel plate structures for many engineering applications. We also furnished steel plate tunnel liners, penstocks, and other complicated steel plate connections at Fort Peck. The same skill, the same facilities we used for this project are available to help you. Simply write our nearest office for details and quotations.



4) The 40-ft. diam. by 150-ft. high "giants" were erected adjacent to the Fort Peck power house.



5) View showing the enclosure around the Fort Peck surge tanks nearing completion.

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Birmingham, 1 . . . . . 1520 North 50th Street
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Chicago, 4 . . . . . 2101 McCormick Building
Cleveland, 15 . . . . . 2201 Guildhall Building
Detroit, 26 . . . . . 1506 Lafayette Building
Houston, 2 . . . . . 2109 National Standard Building
Havana . . . . . 402 Abreu Building
Los Angeles, 14 . . . . . 1511 General Petroleum Building
New York, 6 . . . . . 3311—165 Broadway Building
Philadelphia, 3 . . . . . 1623—1700 Walnut St. Building
Salt Lake City, 1 . . . . . 1512 1st Security Bank Building
San Francisco, 11 . . . . . 1220—22 Battery St. Building
Seattle, 1 . . . . . 1312 Henry Building
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Plants in Birmingham, CHICAGO, SALT LAKE CITY, and GREENVILLE

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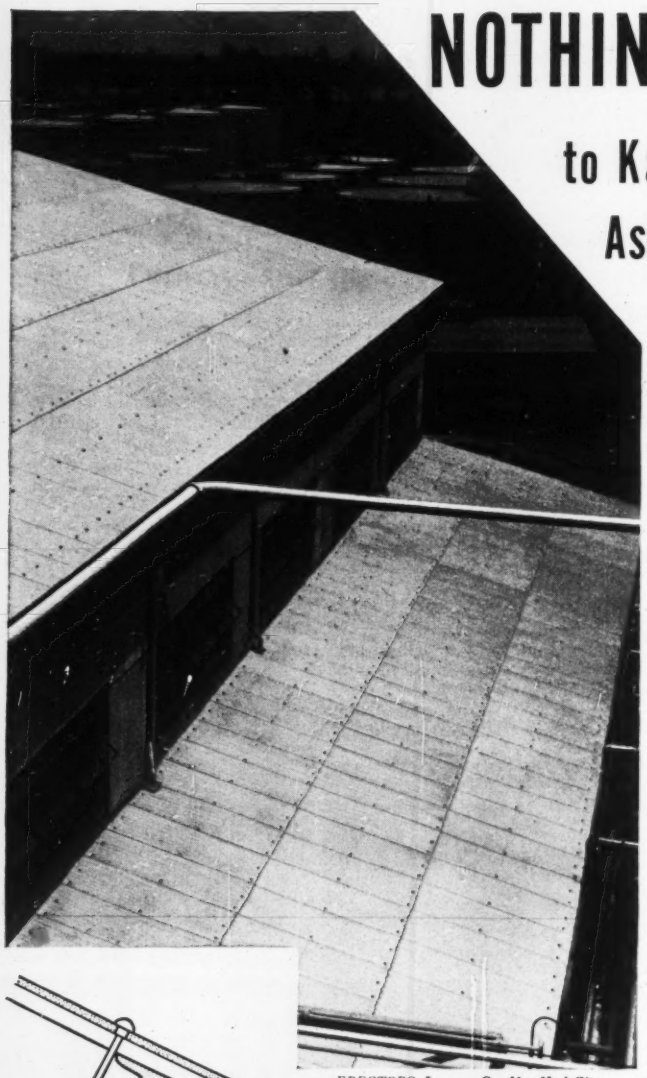


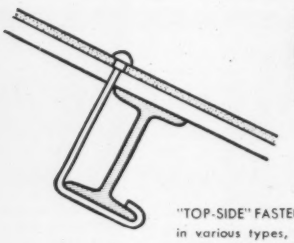
ERECTORS: Lummus Co., New York City.

Here you see it used for both the roofing and siding on this Shell Oil Company building at Deer Park, Texas. Don't ever expect to see it hurt by the weather or other adverse atmospheric conditions. Count on it to go rustless and rotless. It won't suffer from rodents and termites, and is exceptionally resistant to fire.

Easily cut and fitted on the job, K&M "Century" Asbestos Corrugated produces tight, good-looking surfaces at minimum labor cost. For extra savings use "TOP-SIDE"* fasteners, as on this Shell building. They entirely eliminate scaffolding and are only available with K&M "Century" Asbestos Corrugated.

Your finished job will benefit by the inherent structural strength of this material which actually gains strength with age. As for upkeep, you needn't figure on even one bit of paint!

*® H. & B. Enterprise Corp.



"TOP-SIDE" FASTENERS are made in various types, to fit all steel members on both roofing and siding. Illustration of typical "J" type for roofing.

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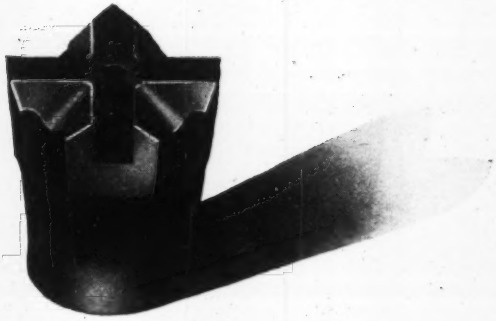

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The performance and economy of Ingersoll-Rand's revolutionary CARSET JACKBIT are now a matter of record – proved by more than two years of actual field experience on all types of mining, quarrying and construction jobs.

This super-Jackbit set with Carboloy inserts, drills from 50 to 400 times as many feet of hole as the best steel bits available – with no appreciable gauge wear! It permits drilling of smaller, uniform-diameter holes to any practical depth, without binding and without bit changes. The elimination of tapered holes saves up to 30% on dynamite alone. And because it drills so much faster and easier, even in the hardest rock, the CARSET JACKBIT reduces air consumption per foot of hole 40% or more, and saves as much as 30% on drill maintenance. No wonder rock-drill men call it "The greatest single advance in rock drilling since the invention of the Jackhamer."

For the complete story on the CARSET JACKBIT, write today for your copy of our new 36-page, pocket-size catalog, Form 4091.

HERE ARE A FEW TYPICAL REPORTS ON CARSET PERFORMANCE

ON A LARGE QUARRY JOB, drilling in hard trap rock with 45-lb. Jackhammers, steel bits dulled so quickly that they required 4 to 6 bits for a 2-ft. change – also the strain of forcing dulled bits caused excessive rod breakage. CARSET JACKBITS, now being used, are averaging 300 feet per bit. Rod life has been greatly increased and drill maintenance materially reduced.

ON A LARGE DAM PROJECT, 2" CARSET JACKBITS were used with 4" Wagon drills operating in hard dense basalt. These bits drilled 24-ft. holes in 22 minutes, while steel bits previously used required 66 minutes for an 18-ft. hole (with 10 bit changes). Footage was increased from 120 to 261 feet per shift. The contractor says "If I'd had CARSET JACKBITS at the beginning of the job, I'd have saved $75,000 to $100,000."

IN DRILLING LARGE BOULDERS, for blasting in an open pit operation, Jackhamer operators increased drilling speed from 4 inches per minute with steel bits to 10 inches per minute with CARSET JACKBITS. This combination of higher drilling speed and the saving of time previously lost changing bits, permitted them to complete 60% more plug holes per day.

A MINING COMPANY, drove 223 feet of 8 x 8 cross-cut in typical siliceous rock with 3" drifters and 1½" CARSET JACKBITS. Eighteen bits were used, averaging over 300 feet per bit. By drilling small uniform diameter holes with CARSET JACKBITS, they saved 8 pounds of dynamite per foot of advance, or total of $223. – which more than paid for the cost of the CARSET JACKBITS!

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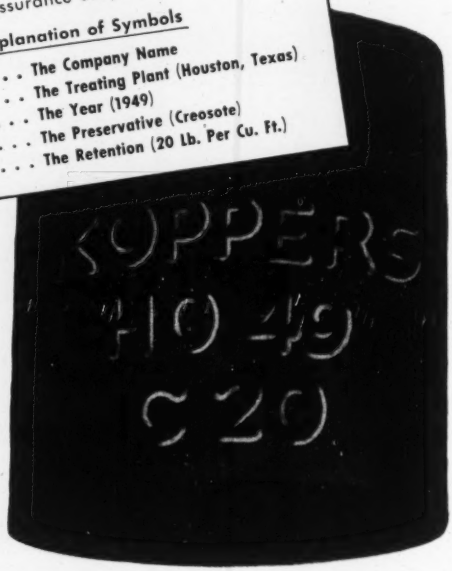
Explanation of Symbols

KOPPERS . . . . . The Company Name
HO . . . . . The Treating Plant (Houston, Texas)
49 . . . . . The Year (1949)
C . . . . . The Preservative (Creosote)
20 . . . . . The Retention (20 Lb. Per Cu. Ft.)



TYPICAL BRAND

KOPPERS Pressure-Creosoted Timber Piles—foundation or marine—provide economical, long-lasting foundations. To these advantages, add the Koppers Brand. The Koppers Brand is placed 10 feet from the butt of each pile; it plainly tells you and your inspector what you are getting in preservative and retention. You can now buy these safe and dependable branded piles.

Prompt Deliveries

Large stocks of Koppers Pressure-Creosoted Piles, in all needed sizes, are carried by Koppers. From its 22 strategically-located Wood-Treating Plants, Koppers can make prompt shipment to any section of the United States.

KOPPERS PRESSURE-TREATED WOOD

KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

NEWS BRIEFS

Reservoir and Tunnel—The U. S. Bureau of Reclamation and Santa Barbara County, Calif., have signed a master contract for the $28,000,000 Cachuma Dam project which calls for the bureau to build a reservoir on the Santa Ynez River and the Tecolote Tunnel through the mountains. It is subject to approval by voters of six water districts on Nov. 22.

Student Housing—The University of Washington at Seattle is seeking to purchase property adjacent to the campus as the site for dormitories to house 2,000 students at an estimated cost of more than $10,000,000.

New Disposal plant Needed—Dr. Warren K. Eglof of Niagara University says that the sewage disposal plant of Niagara Falls, N. Y., is ineffective, and that it would cost over $3,000,000 to build a new plant to handle effectively industrial wastes dumped into the sewer system by local industries. Dr. Eglof asserts that the present plant is not constructed to dilute or neutralize chemicals.

A 9-mile Levee—This fall the Corps of Engineers will turn over to Kansas City, Mo., a new 9-mile-long levee, opening an area of 3,000 acres for development of a new industrial district. The levee, being built under the Pick-Sloan plan, stretches along the south bank of the Missouri River. Then it bends southward along the west bank of the Big Blue to form a long triangle protecting what the planners predict in another decade will be a big industrial center.

Airfield Expansion—Work on the $300,000 expansion at Wold-Chamberlain field, Minneapolis, Minn., held up last spring by legal action, is now well under way. Big machinery is moving 15,000 cu. yd. of earth daily to make a north-east-southwest runway 200 ft. wide and 6,500 ft. long. A north-south runway was completed this summer. Five miles of drainage tubing has to be installed, part of which must go under the north-south runway while planes are using it. A steel tubing will also house electric cables under the runway. The grading and drainage of the project is expected to be finished by July, 1950. Northwest Airlines is also expanding at the field, building three new hangars at a cost of more than $1,000,000.

(*Continued on page 11*)

Pioneered

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UNITED STATES PATENT OFFICE

Richmond Screw Anchor Co., Inc.

Act of February 20, 1905

Serial No. 419,125

TYSCRU

1915

STATEMENT

To the Commissioner of Patents

Richmond Screw Anchor Co. Inc., a corporation duly organized under the laws of the State of New York and located and doing business at 260 Bush Street, in the county of Kings, city and State of New York, has adopted and used the trade-mark shown in the accompanying drawing, for CONCRETE-MOLDING APPARATUS AND PARTS THEREOF FOR CASTING CONCRETE IN SITU, in Class 12, Construction materials, and presents herewith five specimens of the trade-mark as actually used by applicant upon the goods and requests that the same be registered in the United States Patent Office in accordance with the act of February 20, 1905, as amended.

The trade-mark has been continuously used in the business of said corporation, and in the business of its predecessor since December 15, 1914.

Applicant is the owner of trade-mark registration No. 104,309 dated June 1, 1915.

The trade-mark is applied to the goods by stenciling the name upon the boxes or packages in which the goods are packed or by attaching tags or labels bearing the mark to the goods or to the packages thereof.

The undersigned hereby appoints Harry Radzinski, registry No. 10,865, of 535 Fifth Avenue, New York city, N. Y., as its attorney with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the certificate of registration and to transact all business in the Patent Office connected therewith.

RICHMOND SCREW ANCHOR CO., INC.

Act of March 19, 1920

Application May 31, 1934,

Serial No. 352,106

SNAP TYS

1934

STATEMENT

To the Commissioner of Patents

Richmond Screw Anchor Co. Inc., a corporation duly organized under the laws of the State of New York, and located and doing business at 260 Bush Street, in the county of Kings, city and State of New York, has adopted and used the trade-mark shown in the accompanying drawing, for FORM TIES FOR CONCRETE FORMED IN PLACE, Construction materials, and presents herewith five specimens of the trade-mark as actually used by applicant upon the goods, and requests that the same be registered in the United States Patent Office in accordance with the act of March 19, 1920.

The trade-mark has been continuously used and applied to said goods by applicant since the 15 day of May 1931.

The trade-mark is applied to the goods by stenciling the name upon the boxes or packages in which the goods are packed or by attaching tags, tickets or labels bearing the mark to the goods or to the packages thereof.

The trade-mark has been in bona fide use for not less than one year in interstate commerce by the applicant.

The undersigned hereby appoints Harry Radzinski, registry No. 10865, of 535 Broadway New York city, registry No. 10865, of 535 Broadway New York city, N. Y. as its attorney with full power of substitution and revocation, to prosecute this application, to make alterations and amendments thereto, to receive the certificate and to transact all business in the Patent Office connected therewith.

RICHMOND SCREW ANCHOR CO., INC.

by RICHMOND

in 1915

in 1934

and in 1950

all signs point to

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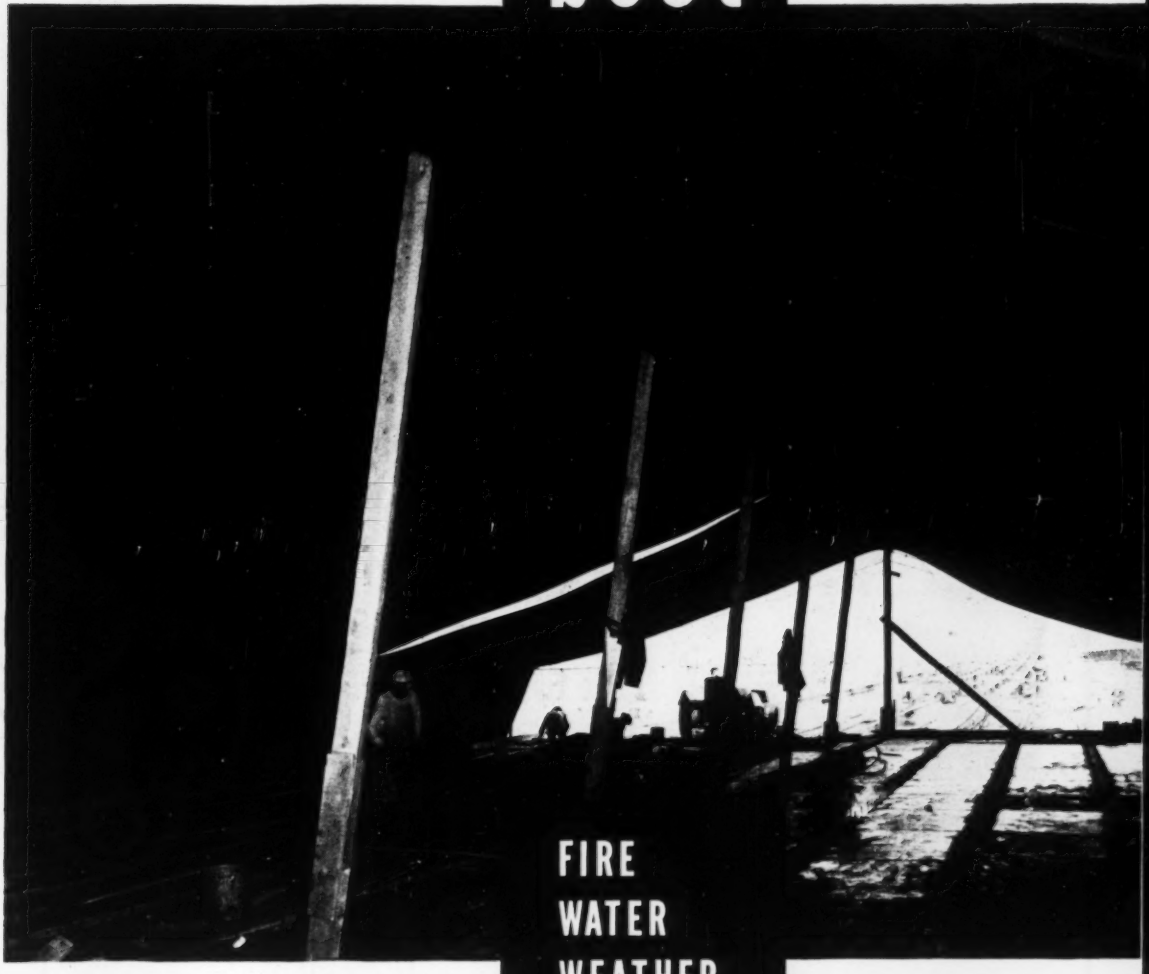

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WEAR

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FIRE CHIEF products are manufactured under U. S. Patents No. 2,044,167, No. 2,299,612 and other patents, all owned by William E. Hooper & Sons Co.

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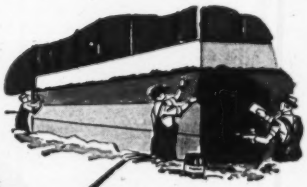
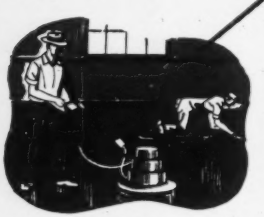
There are Flintkote cutbacks for many jobs, including control of water and dampness . . . above grade and below.

Severe below grade conditions are more effectively met . . . when you specify Flintkote Asphalt Saturated Membrane.



Flintkote Hydralt* Emulsions are asphalt in its most modern, fire-safe form . . . the most lasting weather and corrosion protection for metal and masonry that we know of.

Flintkote Trowel Mastic, especially formulated, helps the control of moisture in buildings. And Flintkote Spandrel Cloth is especially treated to resist attacks of mildew and rot.



For new construction or reflooring, get maximum efficiency at minimum cost by specifying mastic surfacing made with Flintkote Flooring Emulsions. Quick and easy to apply. Ready for traffic in as little as 48 hours.

There's a BIG DIFFERENCE between these two!

Flintkote Aluminum Paint provides light and heat reflectivity. Especially formulated for use over asphalt coatings of all kinds.

"Why?" you may ask. "Each one's an asphalt coating."

True. But when you specify *Flintkote*, you get a coating *especially designed* for the job you have to do.

Conditions surrounding different applications of industrial coatings vary widely. A formula ideal for one job can be next to useless for another.

That's why there are many *different* Flintkote formulae . . . in cutbacks, emulsions, trowel, brush and spray mastics and the like. Each one has *specific characteristics* painstakingly built into it during the many steps of its manufacture. Each coating is *specially formulated* for greater service in resisting weather, wear, water or in providing higher strength and adhesiveness.

That's the difference. And it's a big one. It's a difference that can save you time, money and trouble. So take advantage of it . . . and specify Flintkote. Complete data on any application is yours for the asking.

Write today to:

THE FLINTKOTE COMPANY
Industrial Products Division
30 Rockefeller Plaza, New York 20, N. Y.
ATLANTA • BOSTON • CHICAGO HEIGHTS • DETROIT
LOS ANGELES • NEW ORLEANS • WASHINGTON
TORONTO • MONTREAL

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FLINTKOTE
Products for Industry

New Road Organization—Connecticut State Highway Commissioner G. Albert Hill will put a new organization of his department into effect Nov. 1. The plan, designed to get a greater return for money spent, results from two years of study and research. Changes will be within current appropriations and without any increase in personnel. A major change calls for merging all Hartford engineering functions under one bureau. Field engineering functions heretofore divided between the bureaus at the Hartford main headquarters and almost 20 field offices will be brought under supervision of about four district engineers.

N. Y. Highway Work—New York State has awarded highway and bridge construction contracts totaling $255,118,502 in the four years since V-J Day. This was reported by Bertram D. Tallamy, superintendent of public works. He said New York was making a good start in rehabilitating its highway system. Two sections of the 486-mile cross-state Thruway will be opened this fall. Tallamy's predecessor, Charles H. Sells, said two years ago that it would take 12 years and cost $2,000,000,000 to rehabilitate and expand the state's 14,000-mile road system.

Break for the Motorist — Virginia's Highway Department has announced plans to build 50 off-the-highway turnouts to facilitate the weighing of trucks. They will be spotted on routes used most heavily by truckers. Getting the huge vehicles off the roads during weighing will speed traffic and cut down on hazards of night weighing. The turnouts will be of gravel with a 20-ft. concrete slab, the latter slotted to permit the use of portable scales. Also aimed at overweight trucking is the construction of permanent pit scales on heavily travelled U. S. Routes 1, 13 and 301.

Road Survey—Gov. Henry F. Schricker of Indiana has directed the State Highway Commission to re-open the whole question of what type of highway is best to carry heavy loads. Last May the governor appointed a 4-member commission to investigate road damage. These engineers are still working on the investigation.

Gravel Removal Damage—Alleging the firm's gravel operations had endangered the abutment of a bridge across the Boise River at Boise, the State of Idaho has filed suit to enjoin the Chaussee-Swan Sand & Gravel Co. from further removal of gravel or other material from the river bed. The firm has "destroyed and altered the easterly bank of the low water channel of the river," the complaint charges.

SUPERIOR IN EVERY WAY
DESIGNED TO PROVIDE ALL PRACTICAL SHAPES QUICKLY AND EASILY
DOWEL JOINT CURB FORMS
STRAIGHT, RIGID AND FLEXIBLE RADIUS CURB AND GUTTER FORMS
SIDEWALK FORMS
Heltzel
BUILDS IT BETTER
SHAPES, STANDARD OR SPECIAL, ARE EASILY MADE FROM HELTZEL STEEL FORMS
HELTZEL
STEEL FORM & IRON CO.
WARREN, OHIO · U. S. A.

The pipe that keeps

Number One Factor in the low cost of water is cast iron pipe. Conceding the efficient, faithful services of water works personnel, it nevertheless is a fact that the long life of cast iron pipe is the principal factor in keeping water service cheap.

Consider the fact that well over half of the cost of a water supply system is for distribution mains. If the mains had to be taken up and replaced every 30 years or so, and bonds issued to pay for it, the cost of water service would mount. But cast iron mains serve for centuries—*have* served for centuries in the older cities of Europe.

96%
OF ALL 6-INCH AND LARGER CAST IRON WATER MAINS EVER LAID IN 25 REPRESENTATIVE CITIES ARE STILL IN SERVICE
Based on the findings of a survey conducted by leading water works engineers

In America, a survey conducted by water works engineers shows that 96% of all six-inch and larger cast iron water mains ever laid in 25 representative cities are still in service.

And when you realize that more than 95% of the pipe in America's water distribution systems is cast iron pipe, you will approve the headline of this advertisement. Cast Iron Pipe Research Association, Thomas F. Wolfe, Engineer, 122 South Michigan Ave., Chicago 3.

CAST IRON PIPE

water service cheap!

SERVES FOR CENTURIES

An Ad About An Ad

Maybe you saw it! . . .

An ad called, "The Fastest Man What Ever Ran" . . . it appeared in some of the big magazines last year.

Maybe you said, "Bosh! . . . Bet they don't settle claims *that fast!* Why, that's the tallest tale I ever heard!"

Well, I wouldn't blame you . . .

But here's what happened the very day that ad appeared on the newsstands.

One of our policyholders, a large trucking concern, had an accident on the open highway.

8 minutes later the local Mr. Friendly was on the scene . . .

And in less than 30 minutes the entire case was settled to the satisfaction of everyone!

I've said in some ads that we save businessmen mountains of money, thanks to our special Engineering Construction Service . . . which helps reduce accidents and premiums . . .

Well, sir, we can show you dozens of instances where we've helped reduce premiums for contractors (as much as 53%

AMERICAN MUTUAL...*the first American liability insurance company*

© 1948 AMERICAN MUTUAL LIABILITY INSURANCE COMPANY

d About Me! by Mr. Friendly

THE FASTEST MAN WHAT EVER RAN!
(A slightly tall tale)
A policyholder phoned to say
He'd had an accident here today
I said "Hold on! I'm on my way"
I went so fast my voice was alone
Talkin' on that telephone
I can't tell out of the court I was in
And I wouldn't have run out of my skin
Only human skins are hard to replace
So I slowed down a bit, and saved up the pace
But when I arrived I was pleased to see
He was still on the telephone talkin' to me!
This may sound slightly exaggerated
But it will give you a complete idea of American
Mutual's policy of settling claims as
quickly and as fairly as possible!
With 75 offices from coast to coast,
we're the company that's famous for
fast, fair settlements!
AMERICAN MUTUAL
The first American liability insurance company
A M
P.S. Want to save 20% on premiums? Want the greatest extra in
insurance? Our special F. E. Loss Control Service? Write today for free
copy of "The All-American Plan for Business" and "The All-American
Plan for the Home." American Mutual Liability Insurance Company,
Dept. D-1087, 142 Berkeley St., Boston 16, Mass. Branches in principal
cities. Consult classified telephone directory.

low average rate for the field in some cases).

When I talk friendly service in millions of magazine ads . . . very American Mutual man tries to give you the same friendly rvice!

With 77 offices in major cities, they can do it too!

The point is . . . Why not give your local Mr. Friendly a ring. See if he isn't as friendly and helpful as we claim he is!

See if he can't save you *more money*, through dividends and extra service.

And see how close our tall tales really are to down-to-earth reality!

A M

MAIL THIS COUPON NOW—WITHOUT DELAY!

Dept. O-87, American Mutual Liability Insurance Company
142 Berkeley Street, Boston 16, Massachusetts

Without obligation, please *rush* to me more information on the All-American Plan so that I may be richer and happier!

*Name*_____

*Street*_____

*City*_____ *State*_____

Can you afford to bid 33% higher?

No contractor wants to be in this position when "close figuring" is in order. That's one reason so many experienced contractors are using ARMCO Corrugated Metal Pipe on drainage jobs. They have found the cost of installing short, sectional pipe requires higher bids for adequate profits.

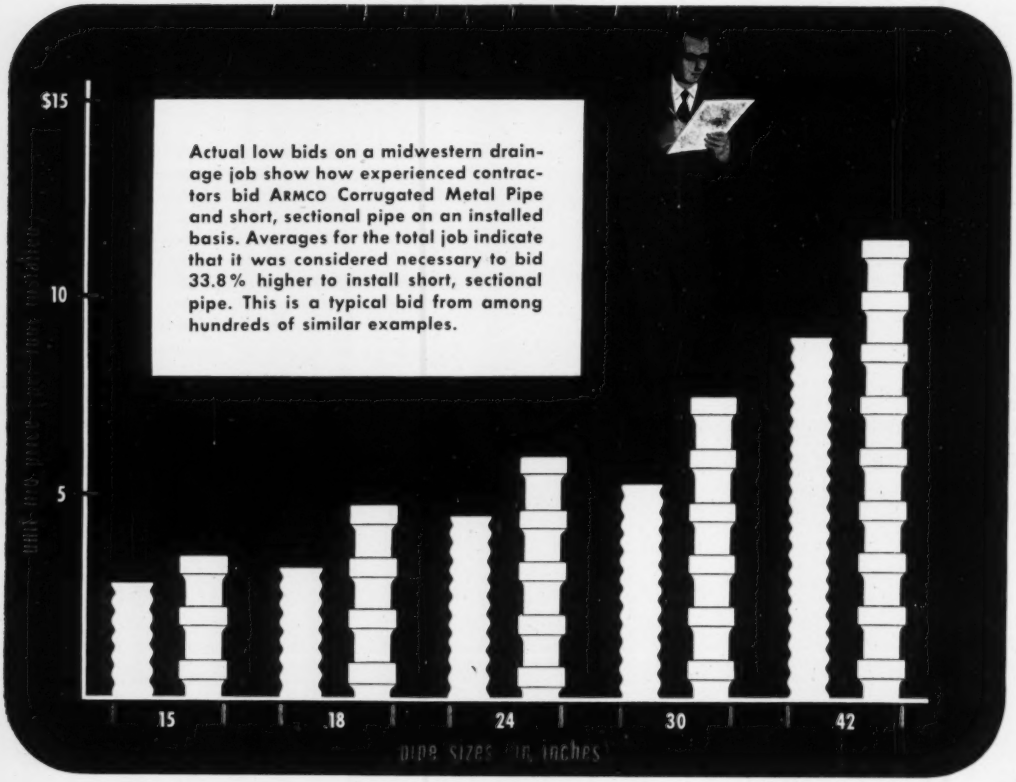
Figured on an installed basis ARMCO Pipe saves money in many ways. Flexible, corrugated metal design assures ample strength without excess weight. This means low handling and hauling costs. Job costs are low because unskilled labor quickly and easily makes the installation. There is no breakage, no curing, no waste, no delay.

Individual sections of standard ARMCO Corrugated Pipe and PIPE-ARCH are supplied in any length that can be hauled and handled. No large and expensive equipment is required for installation. A few men with a rope sling or a small A-frame can handle the largest structure. Connections are made with simple band couplers. Where end finishing is needed, prefabricated ARMCO End Sections are simple to install.

Use ARMCO Drainage Products on highways, railways, airports and wherever else you need economical, easy to install drainage structures. Write for complete data. Armco Drainage & Metal Products, Inc., 815 Curtis Street, Middletown, Ohio.

Export: The Armco International Corporation

ARMCO CORRUGATED METAL PIPE


$15
10
5
Actual low bids on a midwestern drainage job show how experienced contractors bid ARMCO Corrugated Metal Pipe and short, sectional pipe on an installed basis. Averages for the total job indicate that it was considered necessary to bid 33.8% higher to install short, sectional pipe. This is a typical bid from among hundreds of similar examples.
15
18
24
30
42
pipe sizes in inches

THE CONSTRUCTION WEEK

POWER FOR NEW ENGLAND—Federal development of New England water power is expected to be the big item for sale at a six-state Democratic regional conference scheduled for Nov. 20-21 at Boston. Party bigwigs—including governors, Secretary of Labor Tobin and Agriculture Secretary Brannan—will be there, and there'll be talk of farm prices and general politics. But Washington observers are sure the emphasis will be on getting support in New England for area-wide developments by the federal government—projects such as Passamaquoddy and dams on the Merrimac and Connecticut Rivers. Democrats will hold out the advantages of cheaper power as a magnet for new business for the area.

LABOR TALKS—Congressmen at home for brief visits lately got plenty of conversation from labor leaders—all concerning prospects of repealing the Taft-Hartley law in 1950. Labor, in fact, will put the issue to a vote in San Francisco next month, where the AFL is backing its state president to fill a vacant Congressional seat. Labor spokesman concede they need about 20 added seats in the House and three or four in the Senate before they can get legislation knocking out T-H.

COST NOTE—The Zillah, Wash., school board thinks it has found a graphic example of the drop in building costs. Recent bids (and there were 27 bidders on the three contracts offered) set prices at $8.23 per square foot of floor space. A year ago, according to Architect W. H. Rothe of Yakima, costs were $11 to $12 per square foot in the same area.

POWERFUL POWER LINE—A power line with a higher voltage than any in the land—350,000 to 400,000 volts—will be built across Ohio within the next three years, American Gas and Electric Co. planners say. The line will run from Point Pleasant, W. Va., (site of a new $70,000,000 power plant now under construction), to Columbus, and thence to Lima, and the Indiana state line.

INDEX SHAKEUP—Wholesale price indexes carried by the Bureau of Labor Statistics are in for a major overhaul, to shake out dislocations caused by the war. In the end, some of the present commodity indexes will be dropped; others merged or split; others won't be comparable to what's now being reported. The move is particularly important to those who make long-term contracts with a price tag set in terms of what some particular index will show at the date of delivery. BLS advice: On any contracts calling for delivery after 1950, you'd better make alternative price plans.

PRESSURE FOR PORT—The prospect of state action to force a decision as to rehabilitation of the port of Hoboken, N. J. (on the Hudson River, facing New York) appeared imminent last week. The mammoth Port of New York Authority—which two years ago presented a comprehensive plan for rehabilitation of the piers and facilities of the port—released a report which matter-of-factly said that Gov. Alfred E. Driscoll of New Jersey had authorized the authority to act for him in getting a decision on the proposal. The authority had proposed taking over three piers and rebuilding a fourth, paying Hoboken 75 percent of any net remaining after paying off costs. Hoboken city officials—in office after a recent political upheaval—have balked at the terms, demanding more revenue, and more control over the work to be done.

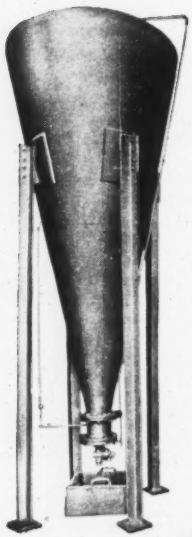
SMOG REPORT—The Public Health Service has issued a monumental report covering a six-month survey of what killed 20 persons during a smog-bound week at Donora, Pa., a year ago. Conclusion: No single irritant in the air at the time was responsible; no single plant in the area was responsible. PHS put 35 experts into Donora to determine what caused the deaths. They checked 18 different irritants present in the air over the city, decided none of them alone would cause death. A combination, or summation of the action, of two or more elements might have done it, however, the experts said. Most salient point of the investigation was the spotlighting the woeful lack of data on long-range effects of living in heavy-industry cities where air is polluted year-round.

NO FLUORIDES—There'll be no fluorides in the St. Louis, Mo., city water supply, if the city follows the unanimous recommendation of a committee of medical, dental and engineering men. Discussion arose when the American Water Works Association suggested that a water fluoridation program might be started if medical and health authorities agreed. Commented John J. O'Toole, director of public welfare: ". . . The St. Louis Health Department still considers fluoridation experimental. . . . It would cost about $100,000 and would reach only about 17 percent of our population, since there is some evidence that (the treatment) is only effective in children under 10."

For dependable
8-minute softening use the
streamlined Permutit® Spiractor®

Permutit has added new speed to lime treatment. The Spiractor softens water twenty times faster than old style methods and takes up far less space!

FAST but SURE!



The Spirator is sturdy and dependable, operates simply, and requires a minimum of maintenance. Raw water mixed with lime enters at the base of the cone at a velocity high enough to suspend a catalyst bed of calcium carbonate granules, low enough to avoid carry-over. The water softening reaction results in precipitates that are deposited on these granules by accretion. Enlarged granules are drawn off through valve in base—and disposed of as easily as moist sand grains. No messy sludge to get rid of! The softened water, clear and low in alkalinity, is ready for suitable filtration.

Write for details to The Permutit Company, Dept. ENR-10, 330 West 42nd Street, New York 18, N. Y., or to The Permutit Company of Canada, Ltd., Montreal.

Permutit®

For over 35 Years Water Conditioning Headquarters

CONSTRUCTION TRENDS

By ENGINEERING NEWS-RECORD'S figures on contract awards, construction is booming.

By official figures from the Department of Commerce, construction is about even with last year.

The two sets of figures seem to be at odds. Among the major differences in them are these:

	First Nine Months Percent Gain Over 1948	
	ENR	Commerce
Total Construction volume	20%	1%
Total Private construction	18%	–6%
Total Public construction	21%	27%
Industrial construction	10%	–27%
Commercial Buildings (ENR)	27%	
Warehouses, etc. (Com.)		–3%
Stores, etc. (Com.)		–23%
Highways	–7%	6%

Not only do the two sets of records disagree on the size of the change in building from last year, but in some types of work one may show volume up while the other shows it down.

How can two sets of figures–both attempting to measure the same industry–be so different?

The two sets of figures differ primarily because they are collected for different reasons: ENR's figures report contract awards on heavy, engineered construction–the information needed most by engineers, contracts, or equipment builders, and material suppliers. The government figures are a record of work put-in-place, the dollar value of materials and labor put into construction of all kinds, including residential building. They record the past performance of the entire industry.

On total volume, ENGINEERING NEWS-RECORD reported $6.2 billion worth of contracts in the first nine months. The Commerce total was $14.1 billion. The Commerce figure, minus private residential building, was $9.2 billion–almost half again as much as the contract awards.

That difference comes in two things: actual work, of course, comes after the contract is awarded. The fact that contract awards spurted in August, for example, means a bulge in the put-in-place figures for this fall and winter–and some work may carry over into next year, or the year after. But the biggest difference in the Commerce and the ENR totals comes from the fact that ENR excludes many small jobs. Its minimum on industrial buildings, for example, is $68,000; and on other buildings it is $250,000.

In short–the fact that ENR's figures show a boom while Commerce's run level suggests that heavy construction work is booming while light work has been lagging. This is borne out by the figures on housing. Dollar value of residential work still lags about 10%.

ENR's concentration on heavy work also helps explain why its figures on private construction run ahead of a year ago–while the overall Commerce total lags. For example, the Commerce classification of "stores, restaurants, and garages" is running 23% behind a year ago. It would include a large measure of small jobs which are not included in the ENR figures.

The difference between ENR and Commerce on public works–ENR shows it up 21%, Commerce 27% –is partially explained by the difference between awards and "put-in-place". Commerce's report allows for work put under contract last year, perhaps, and still under construction. ENR's minimum here, too, may exclude some small jobs covered by the Commerce estimate.

These differences–between awards and value put in place, and between heavy construction and all work–probably account for most differences in reports on total volume and on private and public work.

But the differences in types of work, such as industrial buildings or highways, come basically from a difference in classification. ENGINEERING NEWS-RECORD'S classifications, generally, are much broader than those used by Commerce. ENR, for example, classifies not only factory buildings and plants, but warehouses, grain elevators, and utility building as industrial. The government classification is limited largely to factories and plants built by mining and manufacturing industries. As a result, the boom in utility construction this year lifts ENR's industrial classification sharply–but doesn't show up in the government industrial group.

Similarly, ENR's commercial classification may include buildings ranging from churches and hospitals to a telephone exchange. As reported in ENR each week, it includes a large measure of housing–apartments, public housing projects, and others on which the contract is $250,000 or more and which will involve work by engineers. This class of work, however, is reported separately in ENR's monthly summation.

In all, the differences in conception between ENR's "industrial" and "commercial" classes, and the commerce classes are such that the two are not comparable.

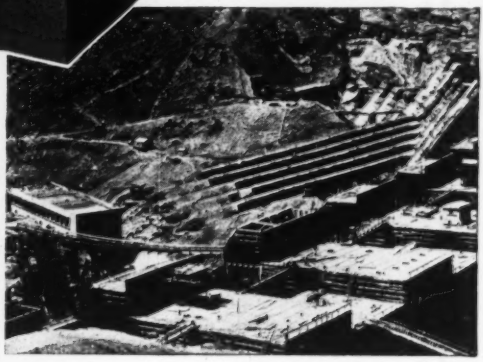
Similarly, highway work, as reported by ENR, and highway work as it is reported by the Commerce Department are two quite different classifications. Major difference is that ENGINEERING NEWS-RECORD reports bridges separately, while the Commerce statisticians have no separate classification on bridges.

In short, the differences between the two figures can be summed up in the differences in the way they are intended to be used: The Commerce figure is a record of what has happened in construction overall. The ENR figures are not only a measure of what has happened in heavy construction, but they are the best indicator of what will happen.

LUKENS IS *Looking for Trouble*

CAUSED BY CORROSION OR EROSION

CLADDING **STEEL**



Penstocks, expansion joints, Venturi tubes, valves and flood gates can well employ Lukens Clad Steels for erosion and corrosion control.

The cure may be a Lukens Clad Steel

We want to know where *you* are having trouble with corrosion or erosion. We know of many severe cases that were remedied by the use of Lukens Clad Steels, so perhaps you can also use them to advantage.

Lukens Clad Steels have surfaces of nickel, stainless steel, Inconel or Monel—uniform claddings in thicknesses to suit each task, permanently bonded to ASME or mild steel backing plates. Thus you get all the structural stiffness and strength you need without having to use *solid* corrosion-resistant metals.

One type of cladding may solve one of your problems, whereas a completely different material may be required for another job. Let us help determine what corrosion-resistant or erosion-resistant metal you need, and then figure on gaining the additional advantages offered by Lukens Clad Steels—Nickel-Clad, Stainless-Clad, Inconel-Clad and Monel-Clad.

Lukens engineers will gladly co-operate in solving such problems. For this help and for Bulletin 449 describing these Clad Steels, write Lukens Steel Company, 513 Lukens Building, Coatesville, Pennsylvania.

CLAD METAL STEEL

Come see us at the Chemical Show in New York, November 28-December 3, Booths 558-563.

LUKENS

Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY

A Route To India

THE VISIT to the U. S. of Jawaharlal Nehru, Prime Minister of India, is a significant event. His arrival on the eve of Columbus Day also carries with it a distinct symbolism: a route to India, which was Columbus' objective when he discovered America, is still being sought. This time it is a route of understanding and cooperation rather than one of mere physical proportions, but the possibilities for the future are no less great for us and for the new republic of India than they proved to be for us and the Spanish sponsors of Columbus.

The possibilities for development in India, in which American engineers and construction men can play a part, are not exceeded anywhere in the world. Previously monopolized by the British, they are now open to all nations who can and will deal with this new country on a basis of equality and understanding. By sending his own plane to London to bring Mr. Nehru to the U. S., and entertaining him while he is here, President Truman gives dramatic notice of the importance that we attach to an understanding with India. It is proper that this understanding first be established on a governmental level. After that, private commercial arrangements can follow on a normal basis.

An example of how this can work out is, by coincidence, reported in this issue (p. 23) in the announcement that Iran has decided to go ahead on a 7-year plan of development drawn up for the country by the group of large American engineering firms operating under the name of Overseas Consultants, Inc. As much as two-thirds of a billion dollars may be required for such facilities as water supply, housing, sanitation, hospitals, schools, and agricultural and industrial aids. Here is a new frontier for American engineering enterprise. It exists in other countries, but nowhere more importantly than in India. It will be well for American engineers and construction men to keep their eyes on this great country as it assumes its place in the community of world nations and looks about for friends and business partners. Mr. Nehru's visit is the tipoff that one of these partnerships is being formed—that a new route to India is in the making.

Detour Signs Build Good Will

DETOUR SIGNS are cheap, but you never would guess it while riding around some parts of this country. In one New England town, a bridge on a main highway is being rebuilt. When last visited, the street was blocked at an intersection on the outskirts of town where the motorist could turn right or left, but there was no detour sign to tell him which way to turn or what route to follow to get back on the highway beyond the bridge. In another eastern state a long detour on a less important highway was clearly marked at the first and second turn, but beyond that the car driver was on his own in a region where the route to be followed was far from obvious.

Possibly the local state highway officials were not directly responsible for this situation in either case. Both repair jobs may have been projects of the town. But the motorist who gets lost is not concerned with such fine distinctions. He is following a marked state route, and when he gets lost for lack of adequate markings he blames the state highway department.

Goodwill is not built this way. Even in those places where the state is not doing the road repair or reconstruction it can improve its relations with the traveling public by doing a better than average job of marking detours.

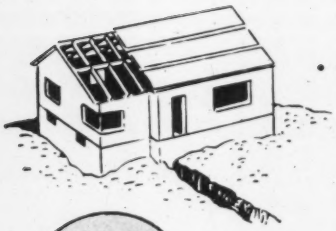
Stepping Up Treatment Capacity

FACED with increasing sewage flows, many municipalities are being forced to consider methods of expanding existing treatment facilities. But this is not the only consideration. Increased emphasis on stream-pollution prevention is focussing attention on the need for better quality effluents.

An example of how capacity is stepped up and effluent quality improved at Baltimore's Back River works is described in this issue (p. 32). Two things were done: Rotary distributors were superimposed on the fixed-nozzle trickling filters; and sludge-removal as well as scum-drawoff equipment was installed in one of the final settling tanks. The first improvement enables treatment of 40 percent more sewage by high-rate filtration; the second contributes to a substantial reduction of suspended solids in the plant effluent. Other advantages accruing from utilization of sludge-removal equipment are: Fresher, more easily treatable sludge; reduction of cost of cleaning final tanks; and completion of the project at a cost estimated to be one-fourth of that needed for equivalent, conventional facilities.

It is important to note that the trickling-filter improvements were based on long-term, plant-scale investigations. Continuance of these studies is assured by construction of a sampling manhole and installation of rate-control devices at one of the high-rate filters. This foresight will permit determination of filtration efficiencies for 6 to 18 mgd. rates-of-flow passing through 2, 4, 6 and 7.5 ft. of stone.

The significant work that Baltimore is doing not only stands as a model for other cities with similar problems, but also holds promise of research benefits.

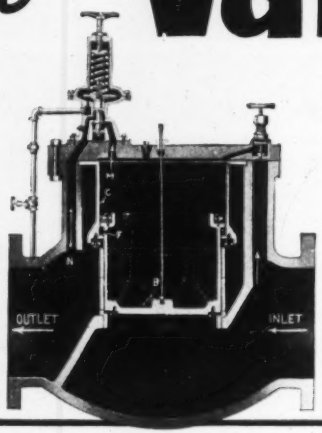


. . . as the service lines are extended to new Community Developments . . .

Get the SAFETY PROTECTION OF

Golden-Anderson

WATER PRESSURE REDUCING Valves



G-A Water Pressure Reducing Valve, Base Pilot Pattern with flanged ends. In sizes 2" and smaller, this valve generally is furnished with screwed ends.

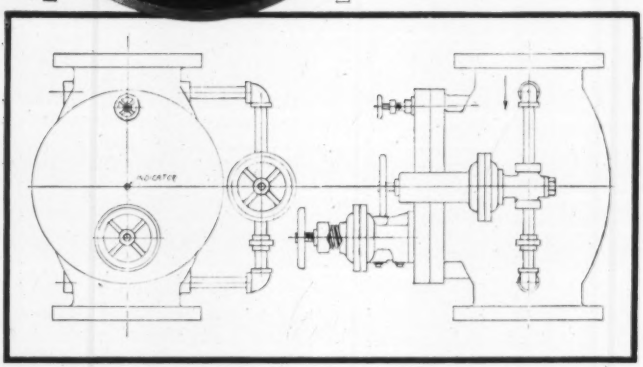
•

Schematic drawing of G-A Water Reducing Valve arranged with a by-passing reducing valve to service minimum demands, and a reserve main reducing valve for maximum demands.

Whenever conditions require maintaining a uniform downstream pressure against a higher inlet head . . . and for high and low water service districts . . . Golden-Anderson Water Pressure Reducing Valves are your answer to efficient, dependable service. In the fully closed position the valve eliminates any building up of excess pressure on the downstream side.

Constructed of special heavy cast iron, semi-steel or cast steel with trim of bronze, Gavalloy or stainless steel —these valves have inherent air and water cushioning to prevent shock or jar.

Auxiliary equipment includes a solenoid pilot control and a manual stop control to limit valve piston travel. All valves are lid-tapped for an atmospheric vent for moving the piston to the full open position. Write for additional technical information.



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ENGINEERING NEWS-RECORD

OCTOBER 20, 1949 VOL. 143 NO. 16

Disputes plan resurrected as unions, employers agree

Arbitration machinery to settle construction industry jurisdictional fights is reestablished after agreement on changes—Pact inoperative for five months

By Joseph Gambatese
Washington Bureau

Spurred by Congress' refusal to repeal or even drastically revise the Taft-Hartley Act, building trades unions last week decided to reestablish their jurisdiction-Disputes arbitration machinery, in conjunction with construction industry employers.

Thus ended a five-month hiatus in operation of an agreement hailed at its inception (ENR Feb. 18, 1948, p. 235) as a major step toward keeping order in the construction trades. The agreement—which involved the Specialty Employer Contractors Association and the Associated General Contractors, as well as the American Federation of Labor's building trades department—was abrogated by union action taken last May (ENR May 26, p. 33).

A new pact, again committing the 19 building trades unions to settle their inter-union difficulties without strikes, was signed this week. It contains changes welcomed by both contractors and the unions, answering some of the criticisms that led the unions to abandon the arrangement last May.

According to James. Marshall, assistant managing director of the AGC, procedures have been strengthened and simplified to encourage agreement between warring unions. For example, an ironing-out agreement—settling an old feud between the carpenters and laborers—already has been reached with the aid of John T. Dunlop, impartial chairman of the joint board that heads up the dispute-settling plan.

The agreement covers removal of wood forms used for poured concrete. Under it, the carpenters will strip forms that are to be re-used. The laborers will clean, oil and carry forms to the next point for re-erection, and they will also strip forms not to be reused, and forms on all flat arch work.

(Mr. Dunlop, as impartial chairman, is head of a board that acts to arbitrate disputes between unions over matters not covered by existing inter-union agreements or decisions of the AFL. The board consists of two labor, two contractor members, the impartial chairman, and a pool of 24 members representing labor and employers, which is available for arbitration proceedings. Decisions by the national board are binding on all signatories to the agreement.)

Changes in plan

Significant changes in the plan, to meet contractor and labor objections, include:

A contractor may request a resumption of work, and to expedite this—or end the threat of a work stoppage—the national board may make a spot decision on the job;

"Trade practice," as well as decisions and agreements of record, will be considered by the board in making decisions, and should be recognized by employers in making work assignments;

In national disputes, the impartial chairman, instead of the president of the AFL building trades department, will try to get contesting unions to agree before going to the length of obtaining a board hearing and decisions:

National decisions will be made only by the hearing panel, on appeal from a job decision (by a union only), or when requested by the national joint board.

Interested unions and contractor organizations will now be represented on the hearing panels. If the panel fails to bring about agreement, a decision will be made by the other panel members—the chairman and the general presidents of two disinterested unions.

Hereafter the contractors no longer will have a vote in the national decisions, nor may they petition for such decisions. (Unions had complained that too many of the cases before the national board were brought by contractors.)

Agreements between unions will only be applicable to those unions. The joint board may not apply them to other unions.

CAA limits airport aid to one strip

Wider distribution of federal-aid funds available for airport construction will follow a Civil Aeronautics Administration ruling last week (Oct. 13) against further grants for multiple-direction runways.

Under its radical policy change, CAA no longer will approve more than one runway or strip for small Class 1 airports. For larger fields, it will OK multiple strips only to meet traffic volume. Added runways, which will have to receive CAA Washington approval, will have to parallel or converge with existing strips, may not intersect. And they'll not be justifiable for wind coverage.

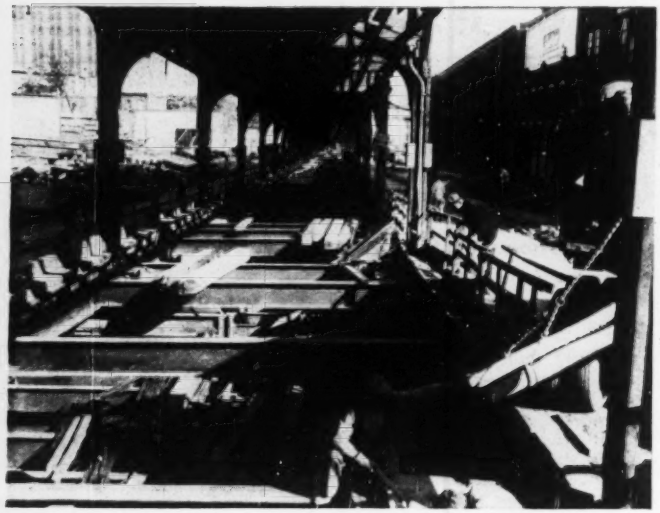
Another anticipated result of the change may be the location of airports closer to urban centers, since one-strip fields will require less land.

Large cities may build several fields. Strips, also, may be longer.

Some of the individual projects on CAA's big backlog of applications for federal aid may be helped by the new policy. Many requests are held up now by lack of funds, either federal or local.

The new policy backs CAA's faith in the cross-wind landing gear, into development of which CAA put $150,000. About 600 sets of castered landing gear are now in use. The equipment, manufactured only by Goodyear Aircraft Corp., hase been tested on five types of single and twin-engine planes.

The new policy was adopted despite opposition of CAA's Airport Advisory Committee, composed largely of airport operators. There's some division of sentiment on the change within CAA's staff, as well.



Philadelphia subway to boost business

Philadelphia can look for a new metropolitan business center as result of the extension of its present Market Street subway beyond the Schuylkill River and on into West Philadelphia.

That's how Mayor Bernard Samuel describes the impact of two jobs which represent the first work on the underground system in 15 years. They will take the subway under the river—through a tunnel already built and from a station connecting with the Pennsylvania Terminal at 30th Street, which also is built—and on to 42nd Street. There are plans to extend it to 46th Street. Beyond that point, it's to be an elevated to 69th Street in Upper Darby. There's also a spur under construction south and west, via Ludlow and 36th Streets, where the subway-trolley cars will come above ground again.

$13,630,000 in contracts under way

Average depth at which the work is going on is 30 ft. Under each contract, new sewers are being built and water and gas mains, as well as other subsurface facilities, are being re-constructed. The George H. Flinn Corp., of New York, has a $6,500,000 contract for the work to 36th Street, on which work has been proceeding for two years. It calls for a four-track subway and two subway-surface lines plus express routes from 32nd Street to a point east of 33rd. Express tracks are to continue west to 46th Street and the Upper Darby elevated.

The Golder Construction Co. Inc., of Philadelphia, is building the 36th-42nd Street stretch, under a $6,130,000 contract one year old. The financing is through $25,000,000 in loans, which should cover the 46th Street extension. Director Lawrence Costello, of Philadelphia's Transit Department, says work is on schedule.

Schools—Catawba County, Newton, N. C., voted $3,750,000 bonds for constructing five high schools and other school additions in county.

THE COVER

Three hangars — each with six steel arches spanning 300 ft.—are being erected by the Port of New York Authority at New York International Airport. Total cost of the three will be $9,200,000. When completed next May, there will be five hangers at the 4,900-acre air terminal, hailed as the world's foremost.

Fabricated in four sections, the triple-hinged arches have 8-in. steel pins at their centers and 10-in. pins at their ends. They abut against piers 25 ft. high and have a rise of about 50 ft., making the clear height at center near 75 ft.

Some 200,000 sq. ft. of hangar floor space and 53,000 sq. ft. of shop, office and cafeteria space is included in the three hangars and the two-story connecting structures between them. Their construction was started early last spring by Stock Construction Company, New York (ENR Feb 10, p. 12).

H. M. Brinckerhoff dies; authority on rapid transit

Henry M. Brinckerhoff, retired member of the consulting engineering firm of Parsons, Brinckerhoff, Hall and MacDonald, New York, died at his home in Englewood, N. J., Oct. 12, at the age of 81. For nearly 50 years, Mr. Brinckerhoff has been recognized as one of this country's foremost authorities on rapid transit.

In 1892, just two years after his graduation from Stevens Institute of Technology as a mechanical engineer, Mr. Brinckerhoff was engaged as an assistant engineer in the design of equipment for the Intramural railway, World's Columbian Exposition, at Chicago. It was while engaged in that work that he developed and patented the third-rail system of supplying electric current for electric railways.

From the World's Fair work, Mr. Brinckerhoff went to the Metropolitan Elevated Ry. at Chicago as electrical engineer, later becoming superintendent of motive power and way and ultimately general manager. It was during this latter period that he met Wm. Barclay Parsons, then chief engineer of the Rapid Transit Commission in New York. In 1906, Mr. Brinckerhoff resigned his position in Chicago to become associated with Mr. Parsons and Eugene Klapp in consulting engineering practice in New York.

Mr. Brinckerhoff's association with that firm continued until his retirement in 1945. In the intervening years, he served as a consultant on rapid transit and subway work at Chicago, Detroit, Cleveland, Cincinnati and New York, also as a consultant on the transportation system for the New York World's Fair. In more recent years, he participated in the traffic studies for the Pennsylvania Turnpike and for the New York State Thruway system, the latter since his retirement.

Robert S. Wait dies, highway materials expert

Robert S. Wait, 59, vice-president of Wait Associates, Inc., 51 E. 42nd St., New York City, dealers in highway construction materials, died in Syracuse, N. Y., Oct. 12.

Mr. Wait was a civil engineering graduate of Cornell University, 1913, and during World War I, he served overseas with a field artillery unit. At one time he was city engineer of Norwich, N. Y. He was a prominent member of the Moles, the organization of New York City heavy construction men.

Overseas Consultants wins contract for $650-million Iran development

First such program in history, forerunner of Point 4 activities, to start immediately—Non-construction activities pushed first

By R. N. Larkin

With a signed contract calling for Overseas Consultants, Inc., to advise the Iranian government on a seven-year, $650-million program of national development, American construction could take pride this week in:

1. The first display of what the national administration's "Point 4" program can mean to undeveloped nations around the world.

2. The first assignment by any sovereign country for a group of foreign experts to shape its domestic culture.

OCI president Clifford Strike, three days beyond a nine-week hospital sojourn resulting from an airplane accident (ENR Aug. 18, p. 24), described the detailed program which had been prepared for Iran by OCI's 11-company group and announced that the vast development will proceed at full speed. The OCI plan grew out of an earlier survey by their organization (ENR Oct. 28, 1948, p. 73).

Health and welfare emphasized

First concern will be improvement of health, education and agriculture in Iran, strike asserted. He told a press conference, in which OCI's chairman John R. Lotz, board chairman also of Stone and Webster Engineering Corp., and OCI's treasurer, George V. T. Burgess participated, that little of lasting significance can be done for Iran until these basic contributors to a nation's well being have been improved.

Tremendous results can be obtained in very short periods, Lotz asserted, by such relatively simple expedients as the drilling of wells and the spraying of villages with insecticides.

First specific action to build up Iran's industrial potential probably will come in the cement and textile industries already in existence. There again, OCI declared, vast improvement may be had quickly and at relatively minor cost. Public works projects on a greater scale are perhaps two years away, Strike, Burgess and Lotz agreed.

But in the meantime, non-Iranian manufacturers of textile, cement and agricultural equipment particularly, as well as others, can look for business. The expectation is that as much as 40 percent of the available funds will go to foreign purchases, perhaps two-thirds of them in the United States.

There'll be jobs for non-Iranians, too. OCI estimates that as many as 4,000 foreign nationals will be employed in Iran on the seven-year program. Some of them will be engineers; some will be health experts, others, farm men and educators. One big need will be people who can train Iranians to do the things called for in the program.

Financing of the huge program seems solidly assured. Under Iranian law establishing the plan as a national effort, all revenues of the Anglo-Iranian oil contract may be diverted to the development program. The contract, also, assures full convertibility of the sterling paid under it into dollars. The 1949 contract calls for payments equivalent to more than $50,000,000, OCI sources declared, adding that this sum is protected against a decline in dollar value as a result of the devaluation. In addition to its oil royalties, Iran has available funds which flow from Anglo-Iranian's annual expenditures in Iran. Those are estimated at a sum at least equal to the royalties.

Financing to be Iranian

At present, the program calls for complete Iranian financing. The hope exists that one or more World Bank loans will be obtained for certain of the projects which give evidence that they can amortize themselves. But with or without foreign financial assistance, Iran has undertaken a $650-million program it is prepared to finish, Strike asserted. OCI's five-volume report lays out specific programs in these fields:

Public health; education; agriculture; water resources; meteorology; surveying and mapping; town improvement and housing; transportation; communications; industry and mining; electric power; petroleum; statistical organization; distribution; posts and postal transport.

Lotz pointed out that it would take several generations for Iran to develop itself to a point of comparison with western nations. But he emphasized that the seven-year program is not aimed merely at creating a climate in which such a development could be undertaken. Seven years hence, he made it plain, Iran will not only have such a climate but it will also have made a tidy start at achieving that development.

Los Angeles construction hit by suppliers' strike

With $65,000,000 worth of Los Angeles area construction held up by a strike of AFL operating engineers against 13 aggregate companies, management and union officials were attempting early this week to halt a 14-day labor stoppage.

Throughout the metropolitan area, construction was grinding to a halt under the impact of an Oct. 3 work stoppage involving 500 quarrymen. It had idled 35,000 workers early this week and halted 60 percent of the area's home commercial and industrial construction.

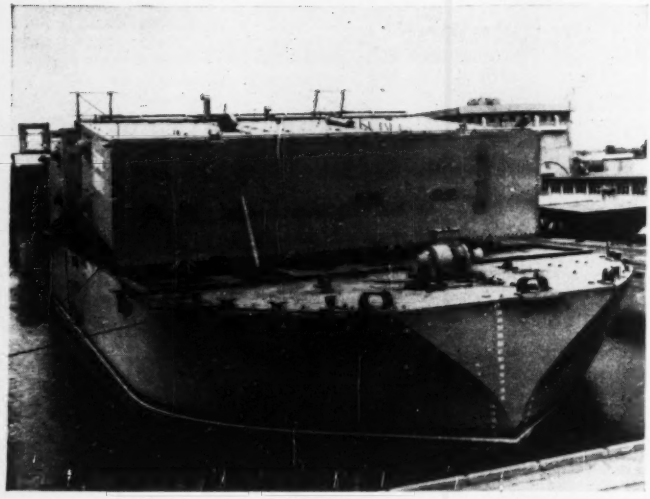
Jobs of another 40,000 workers were at stake if the strike goes on for a week or two, according to estimates of Edward L. Sills, executive vice-president of the Building Contractors Association of California.

Union demands were for six paid holidays, the equivalent of a 5.5-cent hourly wage boost and redefinition of certain job classifications. James Royce, a union negotiator, charged refusal by employers to arbitrate. He sought a two-weeks "back-to-work" movement, with arbitration to follow in case there's still no settlement. Management wants three weeks of "back-to-work," which the union says would let the aggregate companies stockpile local contractors. A partial list of job casualties so far includes:

Metropolitan Life's $40,000,000 Parklabrea housing project; 22 city sewer and street maintenance projects; an estimated 12,000 homes; $5,000,000 worth of Army flood control projects.

'48 capital outlays up 53%

Municipal capital outlays increased 53 percent last year, as school and sanitation construction went ahead at an unprecedented rate. School spending was 141 percent higher at $34 million in the 37 major cities surveyed by the Department of Commerce, than during the previous year. Sanitation work cost an even 100 percent more, at $87 million. Highway expenditures were the other large contributor to increased capital outlays, at $111 million, 33 percent higher than 1947. The total for 1948 was $313 million of public capital spent by the 37 cities.



MOTHBALL FLEET ADDITION—One of the floating drydocks, which are being prepared against the ravages of weather and climate and retired to quiet harbors throughout the world. This one has had its wing walls folded and openings sealed. The 10-in.-dia. curved pipe at left center on the roof is part of the dehumidification installation. Machinery is kept operative. Inspections, automatic functioning of dehumidifiers, keep craft ready.

Anti-sub weapon attacks pollution

Ultrasonic waves helped the Navy clean the Atlantic of submarines during the war and it may help clean up certain types of pollution in the Ohio River and its heavy industrialized tributaries.

At least, that's what the Ohio River Valley Water Sanitation Commission hopes will be the case. The commission revealed recently that its technicians are experimenting with high-frequency, high-intensity sound waves —which can be induced by a siren or by electro-magnetic devices—as a means of eliminating phenol wastes. It has been demonstrated, even though this technique has hardly been used at all industrially, that high-frequency sound will induce complete mixing of oil and water, remove grease from steel within seconds, and sterilize food. All this makes the commission's staff wonder whether it won't help break up complex industrial wastes which are widespread in the watershed. The commission also has several other treatment methods under study, aimed particularly at phenol wastes.

Phenol wastes are discharged from by-product coke ovens and certain chemical plants along the Ohio and its tributaries. It is a principal source of unpleasant tastes in drinking water.

The commission also voted complete support to the West Virginia Water Commission seeking enforcement of a court order requiring Huntington, W. Va., to install sewage treatment facilities. Commission engineers found water in the Ohio near Huntington doesn't even approach the most lenient standards accepted today, according to the commission.

And broadening its work, the commission appointed a committee to investigate stream pollution arising from soil erosion. Headed by Dr. O. Lloyd Meehean, chief of the Game-fish and Hatcheries Branch, Department of Interior, the committee includes Henry Ward, Kentucky Conservation Commissioner; J. J. Woltmann, Bloomington, Ill., consulting engineer; Dean E. A. Holbrook, University of Pittsburgh; and Commissioner Ross H. Walker, of the Virginia Water Control Board.

Hudson Biery, public relations director of the Cincinnati Street Railway, was named chairman of another committee to negotiate with Tennessee, Alabama and North Carolina regarding their participation in the Ohio Compact Commission. Other members are Commissioner W. W. Jennings, of the West Virginia Water Commission; Henry Ward and Ross H. Walker. •

Lincoln prize awards for welded bridges

Awards totaling $6,250 to bridge designers for the best designs of a 2-lane 120-ft. deck highway bridge of all welded construction were announced recently by the Lincoln Arc Welding Foundation, Cleveland, Ohio. The program was sponsored by the Lincoln Foundation as an incentive to engineers to design bridges especially for welded fabrication and to explore the future of bridge design with thinking not bound to the restrictions of tradition.

First prize to professor

The $3,000 first award went to Thomas C. Kavanagh, professor of civil engineering at Pennsylvania State College, for a design using a compact triangular-shaped steel frame to support the bridge roadway. Taking advantage of two special steel shapes devised by the designer, as well as economy and facility of welded joints, the airplane-like frame results in a simplified, lightweight, low cost bridge of graceful appearance.

The second award of $1,500 was given to Angel R. Lazaro, Jr., of Malabon, the Philippines, civil engineer graduate of the State University of Iowa. His design features a new Y-shaped steel member, reducing the number of steel pieces handled, the weight, and the amount of welding, while doubling the utility of material used.

The third award, of $750, went to Fred C. Miller, consulting engineer, Toledo, Ohio, for a design employing a special-shaped piece which facilitates welding the steel pipe used for bridge members.

Contest officials named

The Rules Committee and the Jury of Award consisted of: Wilbur M. Wilson, chairman, research professor of structural engineering, University of Illinois; E. E. Dreese, chairman board of trustees, Lincoln Foundation, chairman, department of electrical engineering, Ohio State University; Harry C. Boardman, director of research, Chicago Bridge and Iron Co., Chicago, Ill.; Prof. James G. Clark, department of civil engineering, University of Illinois; John I. Parcel, consulting engineer, Sverdrup and Parcel, St. Louis, Mo.; Lee E. Philbrook, assistant bridge engineer, Illinois State Division of Highways, Springfield; and Prof. Frank W. Stubbs, Jr., school of civil engineering and engineering mechanics, Purdue University.

SELF-CLOSING WINDOW—Attilio D. Carani, inventor, of Miami, Fla., demonstrates how his automatic window will close itself during rain storms. (Wide World Photo)

Conference on large dams to be held in India

The International Commission on Large Dams will hold its fourth conference at New Delhi, India, in 1951. It is expected to bring together eminent dam designers and builders from all over the world.

The U. S. committee of the International Commission may submit to the conference a limited number of papers prepared by engineers of this country on one of the following four subjects:

1. Method for determining the maximum flood discharge which may be expected at a dam and for which the dam should be designed. Selection of type and general arrangement of the temporary or permanent outlets and spillways and determination of their capacities.

2. Design and construction of earth dams or rock-fill dams; core walls and diaphragms of earth dams and rock-fill dams.

3. Sedimentation in reservoirs and related problems.

4. Concrete for large dams.

Communications on other subjects of unusual interest will also be accepted at the option of the United States committee.

Engineers of the United States who are interested in submitting papers on the above subjects before April 1, 1950, should communicate with the United States Committee on Large Dams, Gail A. Hathaway, Chairman, 4316 Van Buren Street, University Park, Hyattsville, Md.

Consultants plan for S. F. bay crossing held ineffective by California engineer

State official finds construction plans feasible but financing incapable of permitting effective and early traffic relief

Construction proposals to abate San Francisco's transbay transportation problem are feasible, but financing plans behind them are not.

That was the finding last week of California's San Francisco Bay Toll Crossings Division (Department of Public Works), after a four-month study of the proposals. Consultants Ole Singstad, O. H. Ammann and T. T. McCroskey made the proposals last spring in a report to the (Dolwig) legislative committee considering a second bay crossing. They recommended a three-stage program (ENR June 9, p. 55). The three stages were substitution of busses for rails on the existing bridge, a tube-trestle crossing to the south, and additional cantilevered lanes on the existing bridge.

The report was followed by a $893,000 appropriation for engineering on a "twin span" which earlier had been approved by the state's Toll Bridge Authority. But the appropriation legislation withheld any funds until a study was made of the consultants report.

Tudor lists objections

Chief Engineer Ralph Tudor, of the toll crossings division, recommended against the consultants' three proposals. His points:

1. **Consultants:** Abandon transbay rail lines for extra auto lanes.

Tudor: This would limit further mass transport planning to busses. Adequate today, busses probably can't handle any greater loads. This move, legally doubtful in part, might also increase fares.

2. **Consultants:** Build a four-lane version of the six-lane tube-trestle crossing recommended by an Army-Navy board (ENR Feb. 13, 1947, p. 3).

Tudor: Such a crossing is good, but build the "twin" bridge first.

3. **Consultants:** Cantilever two more lanes beside the present bridge's upper deck.

Tudor: Safety requires open steel grid on such lanes. Motorists prefer concrete.

But Tudor cited financing of the three stage-plan—estimated to cost $210,096,000—as the main obstacle. The plan requires 15 years. Early in that period, Tudor says, bridge conditions would be somewhat worse than at present. By the end, traffic would equal new capacity. Replacing lower-deck rail lines with roads could be financed from existing tolls and finished by 1952. But tube-trestle financing would take until 1955—for 1959 completion—and the cantilever roadways couldn't be ready before the year 1964.

Fails to relieve traffic

Tudor said this failure to provide "early and continuous relief" of congestion is the greatest defect in the consultants' plan. The "twin" parallel bridge, he says, will give adequate capacity well beyond 1951, even if traffic beats minimum estimates by 15 percent.

Assisting Tudor with his report was a board composed of George L. Freeman, of Moran-Proctor-Freeman & Muesser, New York; Ralph Smillie, chief engineer of the Triborough Bridge and Tunnel Authority, New York; O. J. Porter, of O. J. Porter & Co., New York; and Glen B. Woodruff, of Woodruff & Sampson, San Francisco. Assisting the chief engineer on traffic problems involved was Coverdale & Colpitts, of New York, and on finance was Dillon, Reed & Co., New York.

Ohio starts engineering study of toll road route

The Ohio Highway Department has begun a $600,000 engineering study to determine the best northern Ohio location for the state's first toll superhighway. The Ohio Turnpike Commission authorized the survey some time ago.

The road will run in a northwesterly direction from the Pennsylvania boundary to the Indiana line, in the direction of Toledo, Detroit, and Chicago. It will link on the east with a projected westward extension of the Pennsylvania Turnpike, and tap traffic from Youngstown, Akron, Cleveland, Lorain, Toledo, and other cities. The 247-mile superhighway is estimated to cost around $300,000,000.

Funds for the engineering studies will be repaid from the sale of bonds to be issued later to finance the whole project. T. J. Kauer, Ohio highway director and ex-officio member of the Turnpike Commission, says that if possible, he will hire outside engineers to work with the state highway department staff.

Congress agrees at last on Army funds for rivers and harbors, flood control

Deadlocked since June on appropriations for current fiscal year, compromise version is $108-million under budget sum

Congress has finally completed action on the long-delayed Army Civil Functions appropriation bill for the current fiscal year. Compromising such minor differences as the House-Senate conferees had not been able to agree upon in more than four months of debate, the two houses sent to the President a $664 million total. Of this, about $535 million is for construction, $113 million for rivers and harbors, and the rest for flood control.

The President signed the bill Oct. 13.

As passed, the bill exceeds by nearly $71,000,000 the original economy version that the House voted in March (ENR, Mar. 31, p. 23). But the final figure is more than $87,000,000 under the total adopted by the Senate in May and sent to conference June 1 (ENR, June 2, p. 9). By comparison with budget requests, last week's bill cut the recommendations by $108 million, despite the inclusion of initial appropriations for several projects that the Budget Bureau and the President had refused to approve.

Most for existing projects

A good part of the House's 15 percent reduction in construction funds was put back into the final bill. Roughly 70 percent of all the construction money appropriated goes to pay for contracts already in progress. At the Senate's insistence, the final bill allocates a definite sum to each of the more than 300 projects named in the bill—for construction or for planning. The House had voted lump sums for flood control and for rivers and harbors, with project allocations to be made by the Corps of Engineers.

Also at the Senate's insistence, the House agreed to approve appropriations for some of the unbudgeted projects that the upper house wanted to add to the bill. For construction and planning of such projects—some of which had never previously been authorized—the Senate voted about $11,000,000. To complete all these projects would eventually cost $450 to $500 million, according to Chairman Clarence Cannon (Dem., Mo.) of the House Appropriations Committee.

House conferees succeeded in trimming the total for the unbudgeted projects. As explained to the House by Rep. John Taber (Rep., N. Y.) unbudgeted construction appropriations added by the Senate would have initiated projects involving an overall estimated cost of more than $360 million. He and the other House conferees finally agreed to construction appropriations for jobs that ultimately will cost some $93,000,000.

"The $93,000,000 is not all pork," he told the House. "Some of it is for flood control and items that really are in need of the money."

Total flood control appropriations in the bill top $437 million. Of this flood-control total, nearly $350 million goes for construction on 165 individual projects. In addition, the bill provides $67,000,000 of flood control money for the Mississippi River and tributaries, and $3,600,000 for the Sacramento River. For planning of 53 flood control projects, the bill appropriates a total of $3,210,000.

Flood control items listed

Flood control works that get large construction appropriations include Bull Shoals Reservoir, Ark. and Mo., $12,777,500; Clark Hill, Ga. and S. C., $13,000,000; Wolf Creek, Ky., $15,030,700; Garrison, N. D., $27,500,000; Fort Supply, Okla., $12,000,000; Fort Randall, S. D., $23,000,000; Whitney, Tex., $10,500,000.

As first passed by the House last March, the bill would have restricted use of appropriated flood control funds for maintenance or operation of Garrison Reservoir at a maximum normal pool elevation higher than 1,830 ft. above sea level. Garrison Dam is being built to impound water to El. 1850, as originally authorized by Congress. The Senate opposed the 1,830-ft. restriction, and it was taken out.

The $113 million for rivers and harbors construction this year is to be spent on 91 projects. Biggest of the appropriations in the navigation list go to McNary Lock and Dam, $35,000,000, and Chief Joseph Dam, $5,000,000, both on the Columbia River; Chain of Rocks Locks on the Mississippi River, Ill., $9,000,000; and Jim Woodruff Lock and Dam, Appalachicola River, Fla., $7,500,000.

The Senate voted $2,500,000 of construction money for the Tennessee-Tombigbee waterway, but the two houses compromised on $200,000 for planning, as set up in the original budget recommendation and approved by the House.

In all, rivers and harbors appropriations in the bill add up to more than $197 million. They include $2,000,000 for planning of 16 projects, $53,000,000 for maintenance of existing harbors and channels, and $22,000,000 for operation and care of navigation works.

Irrigation features of one California flood control project raised an issue between the two houses. They disagreed over a Senate stipulation that no construction money for Isabella Reservoir be used to build irrigation features until the Secretary of the Army had made an allocation of costs, with the concurrence of the Interior secretary. The House insisted on its demand that the requirement be dropped. In the final voting, the Senate gave in.

Los Angeles ok's sewer

The Hyperion outfall sewer controversy came to an end when Los Angeles' Board of Public Works officially accepted the $3,500,000 project, after Guy F. Atkinson Co., contractors, had met specification requirements by plugging leaks in the structure.

The Board's action came after the City Attorney ruled that the Board, by using the sewer, accepted it.

PIPELINE RADIO—Micro-wave radio relay equipment is replacing Keystone Pipeline Co.'s present communication system on its Philadelphia-Reading line. Five steel antenna towers up to 150 ft. high were built to withstand a 30-psf. wind load by Elizabeth Iron Works, Inc., Elizabeth, N. J. Emil Schaeffer is their tower division's chief engineer.

U.S. seen losing traffic battle

By J. R. Carr

The United States is losing one major battle every day—ever-increasing highway traffic—the American Association of State Highway Officials was told at San Antonio last week.

To turn the tide of this important battle, the states must have at least four things, according to Thomas H. MacDonald, commissioner of the Bureau of Public Roads: (1) There must be more secondary roads; (2) They must have more money; (3) They must have more manpower.

Mr. MacDonald's address was a highlight of a four-day meeting that saw D. C. Greer, state highway engineer of Texas, elected president of the organization, and J. A. Anderson of Virginia named as first vice-president.

In an address bristling with statistics, Mr. MacDonald pointed up the paradox that many states are doing "far too good" a job of maintenance on highways that are nearly completely outmoded. Such practices—necessary during the war—are now "eating extravagantly" into the funds that should be available to rebuild the roads.

"Another deterrent," Mr. MacDonald said, "is the serious shortage of trained engineers. The need for men who will take up highway work can be partially solved by more adequate salaries, retirement plans and better opportunities for advancement through in-training courses."

The BPR head placed the volume of highway construction in the past year at $826 million—which includes $421 million of federal funds. These totals represent a 25 percent increase over value of work done in 1948.

"Lest this picture appear too bright," he cautioned, "I should point out that the value of work completed in 19 of the states during the past year was less than their proportionate share of the $400 million federal authorization. The biggest bottleneck is the urban highway program."

Supporting Mr. MacDonald's statements, in part, was the address of Carl W. Brown, Missouri State Highway Department engineer, who is retiring president of the organization. Mr. Brown pointed out that provision of more funds for road work isn't the entire solution to the problem. "State highway officials must provide leadership, education and administrative guidance to local agencies," he said.

A report to the committee on bridges and structures, told of a 24-ft., two-span and three-span continuous rolled-beam bridge, with concrete deck, expected to cost $40 per linear foot, exclusive of substructure. Mississippi highway officials, reported the development as one aimed at a low-cost structure for secondary roads.

Texas engineers also reported a simple slab span concrete bridge with 18 in. high curb. Without railing, on pile bents of timber, precast concrete, steel or cast-in-place concrete, these bridges (designed for an H-15 loading) cost an average of $78 per lineal foot for a 20-ft. roadway.

In a joint meeting preceding the AASHO session, a joint cooperative committee of the highway officials and the Associated General Contractors saw prospects of a continuing decline in highway construction costs, despite strikes and wage increases. Committeemen thought increased labor productivity, and general availablity of supplies would offset other increases.

Other sections of the meeting included an "international" meeting, at which delegates heard of road progress in Mexico and in England.

Oklahoma's building boost

Public building volume in Oklahoma is due for a $36,000,000 boost as the result of an overwhelmingly favorable vote by the public on a special building-bond issue. The Governor will call the Legislature into special session within about 60 days to make plans for the issuance of the bonds, and distribution of the funds among the 41 state institutions to share in the building program. First allocations will be made to mental and penal institutions.

First special BLS reports

The first of a series of special reports on the nature of housing activity in fifteen selected areas throughout the country, have recently been made public by the Bureau of Labor Statistics. Preliminary data includes number and type of housing in the areas around Houston and Miami, while subsequent reports will cover characteristics, sales and rental prices.

OK money bills in closing rush

Pushing hard for adjournment next week, Congress has been cleaning up legislation making funds available to construction agencies. Completion of the Interior appropriation bill and voting of funds to finance four housing programs previously authorized, helped swell the total of construction funds last week.

The President has signed the Interior bill to give the Reclamation Bureau its biggest—and least hampered—year in history. It got $354 million, and had carryover funds of at least $54,000,000. Construction funds total more than $330 million, with appropriations for continuing projects, in general meeting what had been asked. The act follows Senate lines in restoring House-approved 15 percent cuts (ENR July 21, p. 27).

Contractors win their point

The bill details a general restriction on force account work, holding such expenditures to 12 percent of the appropriation for construction suitable for contract.

Interior got most of its power transmission line funds, with an admonition to make sincere efforts to reach agreements with utilities where the latter want to build lines. USBR was denied its Delta steam plant and Elverta switchyard for California's Central Valley project, but got the disputed west-side transmission lines. The Esta-Valmont line on the Colorado-Big Thompson project was omitted.

New work on which USBR may start includes the Missouri-Souris diversion dam downstream from Fort Peck dam. Also, funds were approved for intensive investigations of proposed projects.

With the Interior bill out of the way, Congress implemented the public housing bill it passed earlier this year (ENR July 7, p. 49). The new fund set up federal machinery to care for:

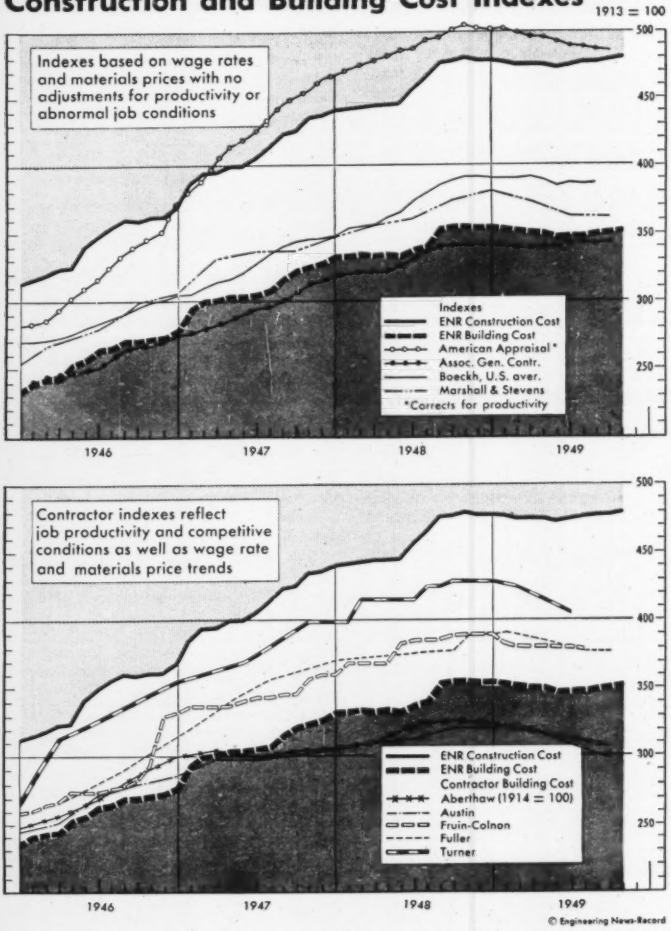
1. Broadened housing research.
2. Slum clearance.
3. Low-rent public housing.
4. Military post rental housing.

The slum clearance and urban redevelopment program is entirely a new program for the Housing and Home Finance Agency. The research program is almost completely new. For these and the other two programs, HHFA's administrative office received $2,700,000 last week, which will be used to establish and expand the machinery to care for these programs.

In the same supplemental appropriations bill, Congress gave $4,250,000 to the Public Housing Administration for its public housing work. And to carry the additional load resulting from a recent law authorizing mortgage insurance up to 90 percent of value for rental housing on or near military posts, Congress gave $2,000,000 to FHA.

CONSTRUCTION BUSINESS

Construction and Building Cost Indexes



Price-cost trends mixed but levelling

Construction costs continued to level off in the third quarter, as higher materials and labor costs outweighed savings from higher productivity, free flow of materials and tight bidding.

ENGINEERING NEWS-RECORD's Construction Cost Index, which measures basic materials prices and wage rate movement, is up 2 percent above a 1949 low point reached in May. This takes it back to last October's peak, just one year later. The "selling price" indexes, which consider productivity and competitive conditions as well as prices and wages, were mixed. Some were still declining in the third quarter; others leveled off.

Wage increases averaging seven cents an hour were the chief factor in the five-month rise of the ENR Construction Cost Index, but a stiffening of lumber prices during the past 45 days has also contributed to the increase. The ENR Building Cost Index is back up to within one percent of its peak a year ago, as the fourth-round raised the skilled wage average 15 cents.

The largest drop in the contractor indexes is three percent for Austin. Alberthaw, for New England, is down two percent, while the American Appraisal and Smith, Hinchman & Grylls are one percent lower. Marshall & Stevens industrial building cost curve is down less than one percent. The Turner Index has not been released, but a spokesman for the company said no change is anticipated.

The E. H. Boeckh, Associated General Contractors and Fruin-Colnon cost indexes touched low points in July or August, and at last reports were on a slight upgrade. Boeckh's national index for brick-concrete commercial and factory buildings increased roughly ¼ point; the AGC index picked up one point in September; and Fruin-Colnon picked up two points between July and October.

Construction Cost Indexes
(1913—100)

Index	Month	Value
ENR Construction Cost..	Oct.	480.4
ENR Building Cost.....	Oct.	353.5
Amer. Appraisal Co.....	Sept.	485
Assoc. Gen. Contr.....	Sept.	343
E. H. Boeckh Co.....	Aug.	386.4
Marshall & Stevens.....	Sept.	362
Aberthaw Co.....	Sept.	307.3
Austin Co.....	Sept.	298
Fruin-Colnon Co.....	Oct.	382
Fuller Constr. Co.....	Sept.	378
Turner Constr. Co.....	June	407
(1926 = 100)		
Smith, Hinchman & Grylls	Sept.	210

Less industrial building

Industrial and utility building awards reported to the CONSTRUCTION DAILY fell behind 1948 figures during the past week, for the first time since late in July. August and September saw a sharp upturn which picked contract awards out of early-1949 doldrums and advanced totals to as high as 12 percent above comparable 1948 figures. Now 1949 industrial awards are running two percent under 1948.

100,000 housing starts

September was the second 100,000-start homebuilding month of 1949, according to Bureau of Labor Statistics figures just released. New housing starts climbed 2,000 above the previous month to equal June's 100,000 peak for the year. Next to the postwar high of 103,300 units which got under way in May 1948, these two months are tops since the war. An average of 97,800 new homes and apartments have been started monthly since May of this year.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 67 went to press.)

Factory and Warehouse—John J. Moore Co., Oakland, Calif., will construct 6-story factory and warehouse in San Francisco, Calif., to cost $8,000,000, owner's name withheld. Walter Monroe Cory, New York, N. Y., is architect. Russell H. Cooley, Oakland, is engineer.

Oil Terminal—Standard Oil Co., Richmond, Va., plans to build oil terminal near James River at Richmond, Va., $1,000,000.

Housing Units—Oman Construction Co., Nashville, Tenn., has been awarded contract to construct 600 dwellings units by Guaranty Mortgage Co., in care of contractor. Project will cost $5,000,000 and will serve Smyrna Air Base.

Radio Station—Bids will be opened Dec. 9, by the Bureau of Yards & Docks, Navy Department, Seattle, Wash., for the construction of $1,000,000 transmitter building for world's most powerful radio station at Jim Creek, Snohomish County, Washington. Project will include quarters, recreation building, shop and facilities buildings.

Sanitary Sewers—City of Chattanooga, Tenn., voted $4,350,000 for sanitary sewers.

Power Line—American Gas & Electric Co., New York, N. Y., plans high voltage power line from Ohio River near Pomeroy to Columbus area, with branches to Lima and to Indiana border, all in State of Ohio. Cost is $5,000,000. Construction will start in 1950.

Bridges and Roads—Pennsylvania State Highway Department, Harrisburg, awarded contracts for bridge at Frazer Street-Penn Lincoln Parkway, and constructing divided highway, with bridge at Bates Street—Interchange-Penn Lincoln Parkway, both Allegheny County, to B. Perini & Sons, Inc., Framingham, Mass., at $1,847,361 and $2,070,570 respectively. Also let was divided highway and bridges, Allegheny Co., to Harrison Construction Co., Pittsburgh, Pa., $2,942,938.

Sewers and Disposal Plant—Town of South Kingston, Wakefield, Conn., plans sewers and sewage disposal plant to cost $3,500,000.

Housing—Housing Authority of Union City, N. J., plans constructing 400-unit housing project at Union City to cost $3,000,000.

School—Lawrence J. Rice, Inc., Forest Hills, N. Y., was low bidder for constructing Public School 249, in Brooklyn, N. Y., when Superintendent of School Buildings, City of New York, Brooklyn, N. Y., opened bids, $1,290,000.

Benson Sewer—Santucci Construction Co., Skokie, Ill., has been awarded contract to construct Benson Sewer, in Omaha, Nebr., by the City of Omaha, at $1,062,343.

Soldiers Home—Commonwealth of Massachusetts, Trustees Soldiers Home, Holyoke, Mass., awarded contract to M. Slotnick Corp., Boston, at $1,979,333 for the construction of Soldiers Home at Holyoke, Mass. William Nelson Jacobs Associates, Boston, are architects.

Incinerator—City of Atlanta, Ga., will open bids Nov. 14, for incinerator addition, to cost $1,250,000. Robert & Company Associates, Inc., Atlanta, Ga., is engineer.

Bridge—Kentucky State Highway Department, Frankfort, plans toll bridge over Ohio River, from Morganfield, Ky., to Shawneetown, Ill., to cost $2,500,000. State of Kentucky will finance. Sverdrup & Parcel, St. Louis, Mo., are consulting engineers for the bridge work.

Hospital—Polyclinic Hospital, Harrisburg, Pa., will open bids Nov. 2 for hospital annex to cost $2,792,220. Lawrie & Green, Harrisburg, are architects.

Housing—Jacobson Brothers Co., Chicago, Ill., was low bidder for constructing dwelling units on Site 1, for Chicago Housing Authority, Chicago, Ill., at $1,429,000. Perkins & Will, Chicago, are architects.

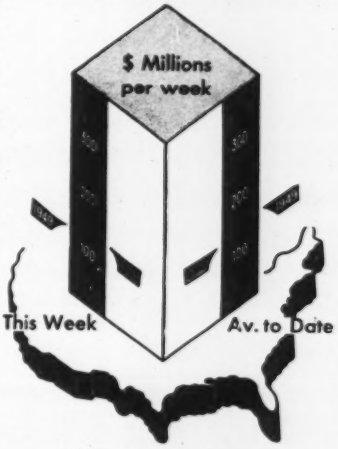
Steam Turbine Plant—Southern Colorado Power Co., Rocky Ford, Colo., awarded contract to build steam turbine plant at Rocky Ford to Stearns-Roger Manufacturing Co., Denver, at about $2,000,000.

Paving—City of Toledo, O., plans 1950 paving program, including resurfacing residential districts, new paving, alley improvements and widening projects at about $1,950,000. Burton R. MacRitchie is city engineering commissioner.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Oct. '49	480.43	230.94
Building Cost	Oct. '49	353.52	191.10
Volume	Sept. '49	291	128



Activity This Week

As reported to ENR (in millions of dollars)

Amount of Contracts let

	Week of Oct. 20 1949	Cumulative 1949 (42 wks.)	Cumulative 1948 (43 wks.)	% chge av.wk.
Federal	$7.2	$865.3	$800.2	+12
State & Mun.	51.4	2,606.6	2,181.8	+26
Total Public	$58.6	$3,471.9	$2,982.0	+22
Total Private	62.9	3,116.9	2,763.7	+18
U. S. Total	$121.5	$6,588.8	$5,745.7	+20

Contracts by type of work

	This Week	Cumulative 1949 (42 wks.)	Cumulative 1948 (43 wks.)	% chge av.wk.
Waterworks	$4.3	$172.8	$168.0	+3
Sewerage	11.2	218.2	180.8	+24
Bridges	4.0	283.8	234.1	+26
Highways	13.0	767.9	858.8	−8
Earthwork, Waterways	4.9	444.1	433.2	+5
Buildings, Public	15.4	1,332.0	922.0	+48
Industrial	17.8	842.7	885.6	−2
Commercial	42.6	1,918.2	1,528.5	+29
Unclassified	8.3	609.1	534.8	+17

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1949 (42 wks.)	Cumulative 1948 (43 wks.)	% chge av.wk.
NON-FEDERAL	$4,740.4	$3,805.3	+27
Corporate Securities	1,942.9	1,800.2	+10
State and Municipal	2,412.5	1,512.8	+63
U. N. Building Loan	....	65.0	...
Federal-Aid Highway	385.0	427.3	−8
Federal	1,163.1	1,558.9	−24
Total Capital	$5,903.5	$5,364.2	+13

Fig. 1. ROTARY DISTRIBUTORS superimposed on Baltimore's fixed-nozzle trickling filters to step up treatment capacity.

Mechanical-Equipment Installations Add 40 Percent to Sewage Plant Capacity

C. E. Keefer
Deputy Sewerage Engineer
Bureau of Sewers
Baltimore, Md.

TREATMENT CAPACITY of Baltimore's Back River sewage works—exclusive of activated-sludge units—has been increased from 100- to 140-mgd. average flow by installation of 30 rotary distributors on 60 percent of the 30 acres of trickling filters.

In addition, character of plant effluent will be improved by equipping one of the two final settling tanks with continuous sludge-removal apparatus. Both improvements will permit acceptable processing of peak flows considerably in excess of 200 mgd.

The 157.5-ft. rotary distributors are located on the surface of the filters in five rows with six units per row (Fig. 2).

Each distributor consists of a central conical column from the base of which extend four flanged-pipe arms. Supported on a 8.5-ft. square concrete pedestal extending down to the filter floor, each central column rotates on a ball-bearing assembly. Ball bearings ride on renewable strip liners of tempered steel with 400-425 Brinnell hardness.

A mercury seal at the base of each column is designed to resist a 9-ft. static hydraulic head. Mercury that may be blown out by excessive pressure will be reclaimed in a trap.

Spaced at 90-deg. angles, the pipe arms decrease from a 36.5-sq. in. rectangle with half-circle ends section at the column to 4-in. dia. at the outer end. Arms are guyed by four vertical and four horizontal turnbuckled rods. Rotation is caused by discharge of sewage from horizontal orifices spaced @ 1.5 to 5.25 ft. centers. Maximum opening is $2\frac{1}{4}$ x $\frac{1}{2}$ in. Each arm contains 44 orifices.

A quick-acting shear gate at the end of each distributor arm permits rapid drainage.

All iron and steel parts of the distributors are galvanized.

Inlet piping expanded

As existing piping was not large enough to take the increased flow, new piping to the distributors was required. Inflow piping, which rests on the filter surface, consists of six pipe manifolds, one per row, and individual connectors to distributors.

Extending from the settled-sewage conduit, across the filters, each manifold decreases from 36 to 30 in. in diameter, is fitted with six equally spaced expansion joints, and contains a 36-in. motor-operated gate valve near its inlet and a 36-in., 30-mgd. propeller-type meter at the edge of the filter bed. Actuated from the distant control building, the valves regulate sewage flowing to distributors. Meters are registering.

Capacity for further expansion

Manifolds have sufficient capacity to deliver sewage to rotary distributors on the entire filter area. This will permit ready installation of additional units in the future.

Individual connectors to distributors are 14-in. cast-iron pipe with a 14-in. butterfly valve and expansion joint. A one-inch corporation-cock drain is inserted on the underside of the cast-iron pipe.

All manifold-pipe lengths as well as connectors are carried on precast concrete piers, set below the surface of the filter stone.

Mechanical pipe joints are made with navy bronze bolts and rubber gaskets. These joints offer some flexibility if settlement of pipes should occur.

Expansion joints are copper, coated with neoprene to act as a protection against attack at the joints by hydrogen sulphide.

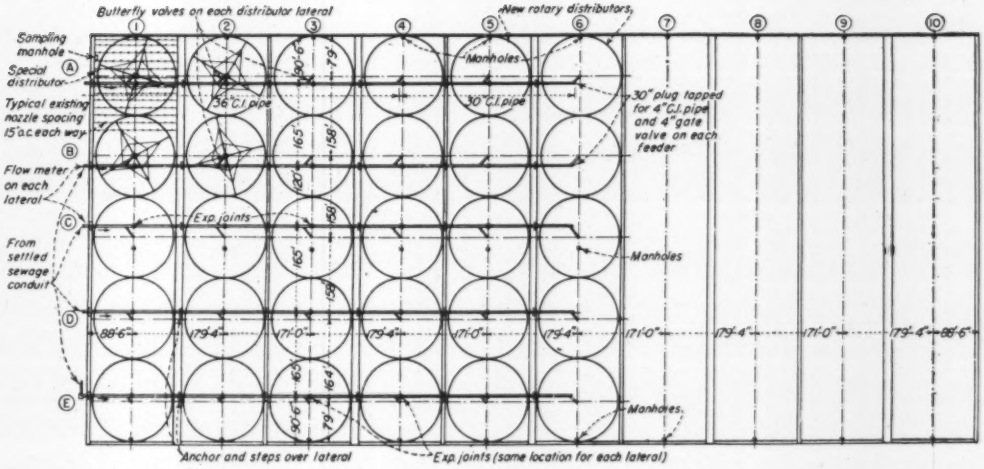

Butterfly valves on each distributor lateral
New rotary distributors
Sampling manhole
Special distributor
Typical existing nozzle spacing 15' a.c. each way
Flow meter on each lateral
From settled sewage conduit
Manholes
36" C.I. pipe
30" C.I. pipe
30" plug tapped for 4" C.I. pipe and 4" gate valve on each feeder
Exp. joints
Anchor and steps over lateral
Exp. joints (same location for each lateral)

Fig. 2. SIXTY PERCENT of the trickling-filter area is served by 30, 157.5-ft. rotary distributors in addition to spray nozzles. New supply piping rests on the stone surface. Flow in manifolds is metered and valve-controlled.

Twenty-nine of the distributors will apply sewage to filters at rates adjustable between 3 and 10 mgd. per acre.

One distributor to be used for experimental purposes is designed to feed sewage at rates varying from 6 to 18 mgd. per acre. Adjacent to this unit, a manhole will permit collection of effluent samples passing through 2, 4, 6 and 7.5 ft. of filter stone. Analysis will be made of samples to determine effectiveness of various rates of filtration through these depths.

Sewage will be applied to filters through both fixed nozzles and rotary distributors. Rate of application by these systems, which will be valve-controlled as flow varies, will be about 3 and 3.33 mgd. per acre, respectively.

Rotary distributors, however, will be operated continuously during the winter. Fixed nozzles will be put into or taken out of service as flow varies. This operating procedure will prevent ice formation at the base of rotary units.

Filter effluent channel enlarged

To carry away the increased flow, a new reinforced concrete effluent channel, varying from 5-12 ft. in width, has been built along the south side of the filters abutting the original outlet structure. Ten, 3.33x6-ft., equally spaced, rectangular holes were cut in the common wall to permit effluent to flow into the new channel.

As sewage flow—even in 1930—was frequently greater than the 110-mgd. filter capacity, studies were made to determine the best means of treating the augmented flow. At that time high-rate filters were unknown. Low-rate trickling filters and activated-sludge units were the only two practicable methods of secondary sewage treatment.

Activated-sludge treatment was adopted because it would produce a superior effluent and be free from fly and odor nuisances—two chief objections of filters.

Designed to treat 20-mgd. average and 40-mgd. maximum flow, activated-sludge units were put into service in 1939.

At the completion of this improvement, it was realized that another expansion of secondary-treatment facilities would be needed to handle increasing sewage flow. As several high-rate trickling filters were operating successfully—particular in California, experiments were conducted with this type of filter at the Back River plant.

Two rotary distributors, each 47.5 ft. in diameter, were built and tested for more than a year at rates varying from 6.5 to 30 mgd. per acre (Experiments with High-Rate Trickling Filters at Baltimore, C. E. Keefer and H. Kratz, Jr., Sewage Works Jour., 12:477:1940). These tests indicated that a 6-mgd. per acre rate would result in an effluent comparable to that obtained with conventional 3-mgd. flow.

As a result of these findings, the decision was made to install rotary distributors on the existing filters and apply settled sewage at 6 mgd. per acre.

Sludge removal speeded in final tanks

To improve the final effluent from the Back River plant, equipment for continuous removal of sludge is being installed in one of the two final settling tanks.

The final-settling tank, which is being remodelled, has been divided longitudinally into two equal sections, 277x142.5 ft. in plan (Fig. 3). Each section will be equipped with 14 straight-line, longitudinal sludge collectors.

Chain-connected, redwood scraper blades, which make up collectors, ride on 30-lb. tee rails, embedded flush with tank floors.

Longitudinal collectors will convey sludge to a transverse depression, 10 ft. wide and 3 to 4 ft. deep., that is located about midway between tank

Facts About Original Baltimore Trickling Filters

Trickling filters at the Back River sewage works were completed in 1914, cover 30 acres and are the largest in the United States. The bed is 1,758x 800 ft. in plan and 8.5 ft. deep. Filter media is 1-2½-in. trap rack. 5,830 fixed-spray nozzles, placed at the corners of 15-ft. squares, distribute sewage to the filter stone. Settled sewage is delivered to the beds through ten conduits, in each of which is a motor-operated butterfly valve for regulating flow. Maximum rate at which sewage could be applied to filters varied from 100 to 110 mgd. and depends on cleanliness of inflow conduits.

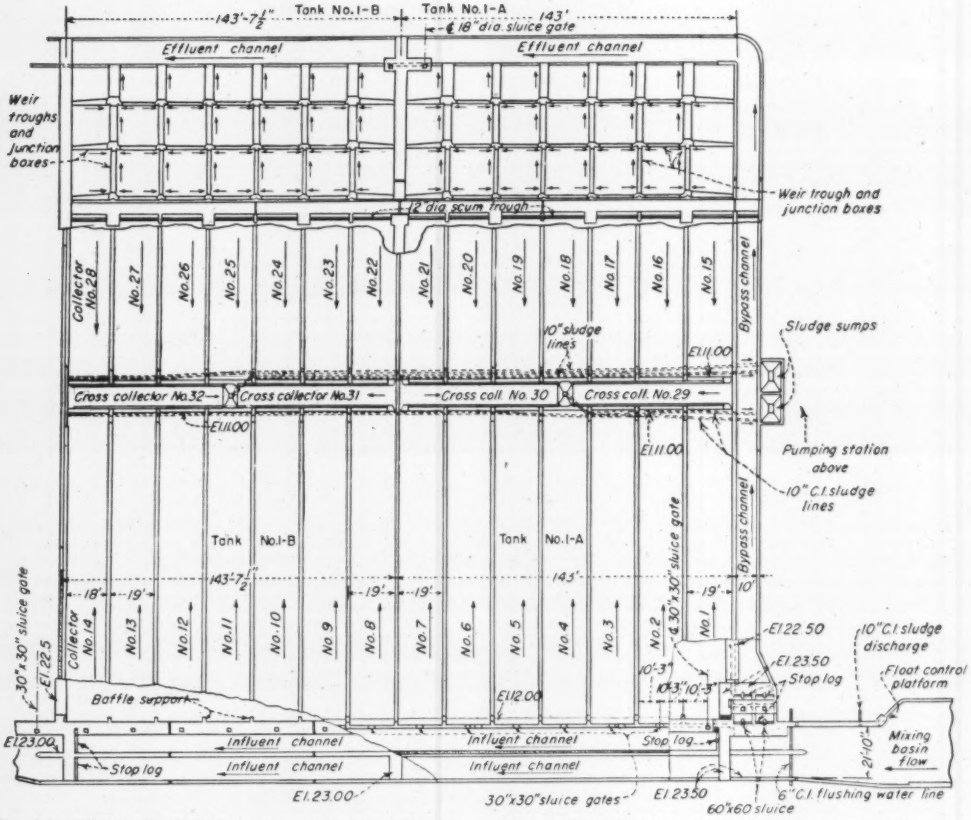


Fig. 3. SLUDGE REMOVAL for one of the two final settling tanks is facilitated by longitudinal and transverse motor-driven scrapers. Sludge may be pumped to raw sewage, digestors or vacuum filters.

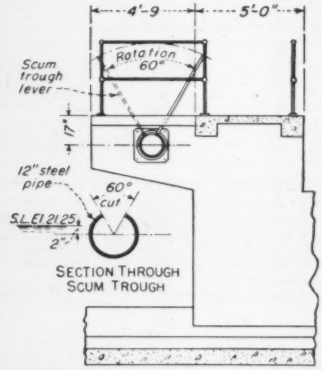


Fig. 4. SCUM on the remodeled final settling tank is withdrawn by manually rotated pipe troughs equipped with wide-mouth longitudinal slots to facilitate the operation.

inlets and outlets. This depressed channel extends across the entire width of each tank section and is equipped with two straight-line chain-connected collectors.

Maximum speed of longitudinal and transverse collectors is one and three feet per minute, respectively.

Each pair of longitudinal collectors is driven by a ½-hp. electric motor while cross collectors have individual ½-hp. electric drives.

Cross collectors discharge sludge into two sumps, one for each section of the tank. From the sumps sludge flows through 10-in. cast-iron pipes through a decanting valve into an open receiving chamber adjacent to a pumping station.

The station houses two reciprocating and two centrifugal pumps. The former pumps with a maximum capacity of 200 gpm. will handle sludge while the 600-gpm. latter units will be used to dewater the final-settling tanks. The electric-motor-driven pumps will be started and stopped manually according to treatment requirements.

Piping makes for flexibility

Piping from sludge pumps is designed so that sludge can be delivered to raw sewage, digesters or vacuum filters.

Direct delivery of sludge to vacuum filters offers certain operating advantages. Final sludge, which contains considerably more nitrogen and phosphates than primary digested sludge, will enrich vacuum-filter cake. As it is planned to heat dry and sell filter cake as a fertilizer base, its value will be enhanced by inclusion of undigested final sludge.

Detention and overflow rate in the two sections of the mechanically clean tank will be 1.4 hr. and 1,260 gpd. per sq. ft. of tank surface, respectively, with 100 mgd. flow.

Suspended-solids removal in the final-settling tanks is estimated at 25 ppm. with 25 ppm. remaining in the plant effluent discharged to the Back River.

Sludge to be handled has been assumed to contain 1.6 percent solids and amounts to 1,600 gal. per mg. of sewage treated.

Scum removal facilitated

A 12-in. galvanized steel pipe extends across each section of the remodeled tank about 64 ft. from the effluent end (Fig. 3). When this pipe is rotated manually about its centerline, the edge of a wide, longitudinal slot (Fig. 4) is lowered below the liquid surface to withdrawn scum. Edges of the slot are normally about 3-in. above the sewage liquid level in the newly equipped final-settling tanks.

The $1,455,600 project is being carried out by the Department of Public Works of which P. L. Holland is director, and J. J. Hunt is sewerage engineer. R. J. Trautman, principal associate engineer, has immediate supervision of the sewage-treatment works.

H. E. Burton, senior associate engineer, is in charge of construction for the city.

Contractors for project

The rotary distributors and appurtenances were installed by John Matricciani and Sons and alterations to final settling tanks are being made by Chesapeake Contractors, Inc. Both firms are located in Baltimore.

Plans and specifications for the improvements to the Back River sewage works were prepared by Whitman, Requardt and Associates, consulting engineers.

Final-Settling Tank Facts

Each existing final-settling tank is 277x290 ft. in plan and varies in depth from 10–12 ft.

When these tanks were put into service in 1911, the operating plan called for manual cleaning when necessary. Before this is done, flow to the tank to be cleaned was shut off and supernatant is pumped into the other tank. Accumulated sludge was then flushed by a fire stream to a sump and pumped to the digesters.

Chief disadvantage of this cleaning method is that, before cleaning, solids on tank bottoms become septic, rise to the surface of the tank and pass off with the effluent.

Removing solids continuously by mechanical scrapers will correct this condition.

Public Works Men Speak Their Minds

Editor's Note—Reflecting the needs of U. S. municipalities, public works officials at their recent congress in Kansas City (ENR Sept. 29, p. 27) spoke their minds—and gave some excellent advice to their listeners. The following abstracts from papers delivered at the meeting point up developments, problems and solutions to the routine, but very important work of municipal housekeeping.

Refuse Collection, Disposal

Many sanitary engineers believe that the use of kitchen garbage grinders will be regulated in the future only until cities can provide adequate disposal plant facilities and sewer systems.

At present, at least 19 municipalities have prohibited the use of garbage grinders. Indiana has a state law permitting their installation but only one city, Jasper, so far has indicated it will take advantage of the law.

The present trend is toward future legislation and regulation which will be in the nature of engineering specifications controlling the mechanics of grinder installation and specifying the degree to which the garbage shall be shredded.—**Ralph C. Taylor, superintendent, Waste Collection Division, Cincinnati, Ohio.**

A survey of state departments of health reveals the need for many new disposal plants as well as remodeling of existing ones. Financing this work is a serious problem in many localities in the United States.

In general, there are five methods of financing: General obligation bonds, used in a great majority of instances; revenue bonds, permitted in eight states; special legislation; refuse disposal authority; and contractor financing. There is a trend toward special legislation to permit financing refuse disposal projects, especially those outside of cities. The issuance of 15-year bonds, however, is unfair, when we consider that water bonds and sewage bonds may run for as long as 40 years. Despite the need for new refuse treatment plants and the remodeling of many old ones, present bonding limitations for the work are too restricted in some areas.—**Henry W. Taylor, consulting engineer, New York City.**

There is a growing interest in this country in the Verdier process of garbage disposal, now used to a limited extent in France. This patented process is an odorless method of disposing of garbage through fermentation. It may be identified as an "aerobic oxidation process of fermentation—meaning simply that the bacteria live in the presence of oxygen and create an end product which has commercial value as a low-grade fertilizer and humus". The process is rapid, requiring only about 18 to 24 days to produce the product. The building of such a garbage disposal plant in this country would be an asset from an agricultural viewpoint, due to the increasing demand for soil conservation and the ready market for fertilizers. One question, however, would be whether American ingenuity and machinery could make the process adaptable on a large scale within the limits of sound economy and efficient operation.—**Raymond A. Williams, director of public service, Miami, Fla.**

Street Cleaning, Snow Removal

Planning for the use of street cleaning and snow removal equipment is as important as determining types and sizes of equipment. Changes in design of this equipment have taken place so rapidly that their effect has not been given the recognition it deserves.

The great importance of continued equipment modernization cannot be over-estimated. Labor expense and other factors have increased the costs of street maintenance and snow removal to such a degree that we get less mileage of such work for the same money.

Thus we must have more efficient and more economical equipment. For example, we need bigger dump trucks for hauling snow, as well as more rugged snow-fighting equipment. Public works officials should be more conscious of the adaptability of winter equipment for summer work. For instance, sidewalk tractor snowplows can be used as small earth movers. Snow loaders may be used to hoist street cleanings into dump trucks for haulage to disposal areas.—**Lester C. Hollis, superintendent of public works, Needham, Mass.**

Public reaction in Akron, Ohio has been unanimously in favor of rust inhibitors for ice control, and no complaints have been received because of the added cost. Results of two years tests with rust inhibitors have indicated that a 2-percent admixture of sodium dichromate in salt is probably the optimum mixture for rust inhibi-

tion. The city also uses an anti-corrosive material called "Banox", mixed into the salt used for ice and snow control. Laboratory tests indicate that a 0.4-percent concentration of this material will reduce corrosion to car fenders by 23-percent. A one-percent concentration is estimated to reduce corrosion rate by 50 percent, and should extend the fender life of automobiles from 3 to 15 years.—**Marvin L. Davis, director of public service, Akron, Ohio.**

Snow and ice control by heat shows more promise of coming into general use where costs of installing equipment are justified by the ultimate results obtained.

Unit costs for sidewalk heating installations, to date, average from $1.00 to $1.50 per sq. ft. The future possibilities for snow and ice control, by heating the pavement, indicate that there will be an ever-expanding use of this method for expressway ramps, airport runways, walks, driveways, and gasoline filling stations. In these installations, studies indicate that a melting rate of 1-in. of snow per hr. is a practical goal for the economics involved.—**John S. Flockhart, supervising engineer, Bureau of Sanitation, Department of Parks and Public Property, Newark, N. J.**

Street Construction

Development of relief measures for traffic congestion in urban areas should carry the highest of priorities. There are five basic requirements for such programs: (1) construct new arterial routes and improve existing ones, (2) street improvement for proper distribution of traffic (3) improved terminal facilities and parking, (4) better transit systems and, (5) improved operation of existing street and highway facilities.—**C. N. Conner, principal highway engineer, Bureau of Public Roads, Washington, D. C.**

Major considerations in Chicago's current and proposed 60-mi. network of multi-lane highways include: the importance of the street being considered, length of the project, width of roadway needed, type of pavement, field surveys of route locations and drainage structures, closing of streets to traffic during construction, location of utilities and the scheduling of utility changes, final preparation of plans and the securing of state approval.—**J. L. Markey, engineer of streets, Department of Streets and Electricity, Chicago, Ill.**

Some cities and states take entirely too long to execute a paving project from inception to completion. One of the greatest bottlenecks is that assessment improvements often are unwieldly, taking one year or more from receipt of petition for the work to completion of the project. This procedure must be streamlined. For example, Buffalo, N. Y. operates a 16-point plan for expediting street improvements that takes only 90 days from the time of the introduction of a resolution by a councilman, to awarding of a contract for the work.—**Ralph C. Graham, superintendent, Department of Construction, Davenport, Ia.**

Equipment Maintenance

One of the major obstacles to any successful equipment preventive-maintenance program is that of persuading all personnel concerned that the program is worth while. Good maintenance of equipment should function before, during and after the operation of the equipment. One of the primary purposes of the Corps of Engineers' preventive maintenance program is to furnish a means for the systematic detection and correction of incipient equipment failures.

To insure this detection, a four-point program is followed: (1) clearly defined responsibility for those directly connected with the work, (2) adequate records of equipment operations and repairs, (3) a system for detecting and reporting mechanical defects and (4) periodic servicing of the equipment, prompt repairs plus a follow-up check on the operation of the equipment.—**Col. P. D. Berrigan, district engineer, Corps of Engineers, Kansas City, Mo.**

Chicago's Clean-Up

Realizing that it is impossible to keep the streets of a city clean unless the public gives full cooperation, Chicago has launched an educational program embodying four cardinal points. They are: The proper handling of garbage and other refuse; cleanliness of streets, sidewalks, alleys, parks, and other public property; rat control; and improvement of privately-owned property.

Many segments of industry are cooperating. For instance, the food industry will distribute 1,000,000 four-page pamphlets covering these four basic points of the program. The Milk Foundation of Chicago will carry the message to its consumers on a special collar placed on all milk bottles delivered during the week of October 10. One million pledge cards will be distributed by the school children of Chicago. The Laundry Association will place a leaflet in each of 450,000 bundles of laundry delivered during the week of October 17. And the Dry Cleaners' Association will attach the message to 1,000,000 garments cleaned that same October week.—**Lloyd M. Johnson, commissioner of streets and electricity, Chicago, Ill.**

Cities Step Up Off-Street Parking

Municipalities are stepping up off-street programs to meet increasing parking problems, according to a recent study by the American Municipal Association, "Parking—What Cities Are Doing." More than 41 million motor vehicles are registered in the nation today—about half of which are in communities of 10,000 or more population.

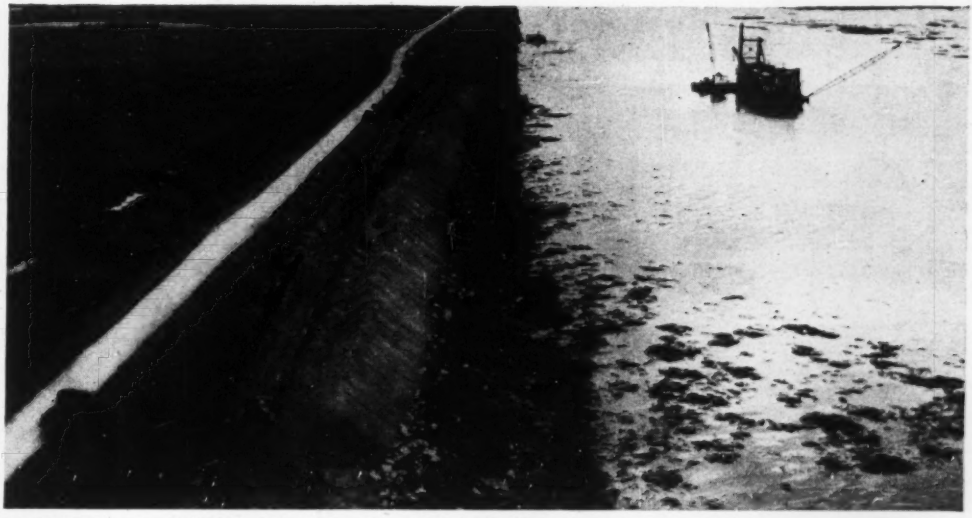
Last month, Ann Arbor, Mich., opened a three-tiered parking structure in its central parking district providing space for 241 cars. Construction was financed by two special revenue bond issues to be retired from on-street meter and off-street lot revenue.

Kansas City, Kan., used its power of eminent domain to acquire parking sites with a capacity of 645 cars. Purchase and development of the lots cost nearly $400,000. Eighty percent of the costs were assessed against neighboring benefited property in varying amounts determined by appraisers. The remaining 20 percent was paid for out of general tax funds.

Rear alley property was acquired by condemnation for use as free parking lots in Garden City, N. Y. The cost of the land was assessed against business and apartment property benefited. Improvement costs are being met by bonds maturing in annual installments over a five-year period.

The realization that curb parking is not free also has spurred cities to provide off-street parking. A 1942 Eno Foundation study revealed that the capital investment by a city amounts to $1,193 for each parking space provided on street right-of-ways, assuming land value of the right-of-way to be $5 a square foot and the pavement cost to be $6 a square yard.

Although space on city streets is insufficient to provide all needed parking sites and to handle increased traffic, an equitable use of parking space would help solve many cities' problems. Enforcement of parking regulations is the key to equitable distribution of curb space, the study points out. "There are few municipal regulations for which the public appears to have less regard than those which govern parking."



DRAGLINE DIGS TRENCH along the lakeward slope for hydraulic fill supplied by the 22-in. suction dredge at the right as the . . .

Army Treats Okeechobee Levees for Hurricane Bruises

LEVEES on Lake Okeechobee had strength to spare as they withstood waters raised by Florida's most recent hurricane, Aug. 26-28. Winds up to 128 mph. lashed the lake for 7 hours, causing a setup near Bacom Point 10½ ft. above the normal lake surface.

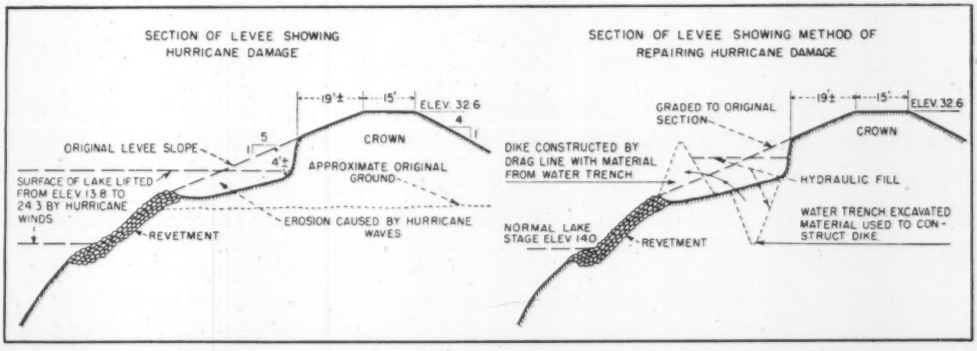
Raised to a level above the riprap revetment, waves eroded sod-covered slopes along 4,000 ft. of the dikes—causing injury estimated at $260,000. But, in this minor damage, Corps of Engineers spokesmen found cause for pride (ENR Sept 8, p. 12) as their levees restrained successfully the lake that in the disastrous hurricane of 1928 took the lives of 2,300.

The first federal government construction at Lake Okeechobee was started in 1930 and finished in 1937 with completion of 83 miles of levees. Then in 1940, 14 miles of levee along the southeast side of the lake were enlarged and reinforced (ENR May 9, 1940, Vol. p. 636) by the Corps of Engineers.

In repair operations, begun as the hurricane subsided, a 22-in. suction dredge supplied the required 40,000 cu. yd. of fill from the lake bottom. But first, draglines prepared a trench 18-ft. in the damaged lakeward slope of the levee for receiving and draining the hydraulic fill. Material from this trench was piled along its lakeward side to act as a dike during the hydraulic filling operation, after which it was spread over the fill to restore the levees' initial 1 on 5 slope.

Studies are underway toward preventing future erosion of the top slope of the levees. Consideration is being given to soil-cement paving, soil-asphalt paving and rock riprap. Decision on the type to be used will depend on engineering and economic studies.

Repair work is being done by the Jacksonville District of the Corps of Engineers under direction of Col. R. W. Pearson.



DAMAGE DONE and the method of repair are shown in the above cross-sectional views of levee near Bacom Point, Florida.

VACUUM CURING of concrete is tested on slab and monolith construction at Corps of Engineers concrete laboratory.

Vacuum-Cured Concrete Test Specimens Are Studied at Corps of Engineer Experiment Station

WHAT THICKNESS of concrete slab can be properly cured by the vacuum process? This and a number of other questions regarding the vacuum treatment of concrete in slab and dam construction are being investigated by the Waterways Experiment Station of the Corps of Engineers.

Tests are being performed on seven large-size concrete specimens in the new concrete research laboratory at Clinton, Miss. (ENR Aug. 4, 1949, p. 25).

Concrete specimens, including six flat slabs from 9 in. to 36 in. thick, and a 16-ft. high model of a monolith in dam construction, were poured inside previously built forms last July. Results of the studies are expected to be made available late this year.

Actual field conditions of placing, vibrating and curing the concrete were followed as closely as practicable. The accompanying photographs show the sequence of constructing one of the horizontal slabs which measured 8½x6½ ft., by 36-in. deep.

Concrete aggregates, graded in size from a manufactured sand up to 6-in. limestone rock, were shipped in from Flippin Quarry, Ark. which is furnishing the aggregates for Bull Shoals Dam.

An air-entraining cement was used, with a cement factor of 3.0 bags per cu. yd. Concrete was mixed in the laboratory, trucked a short distance to the site in 1-cu. yd. buckets and deposited by crane directly into forms.

Poured in lifts

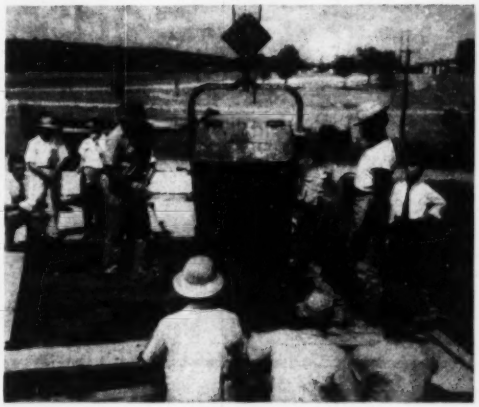
The 36-in. slab was poured in two 18-in. lifts. Both lifts were vibrated with internal vibrators, and a platform vibrator was used to smooth and compact the top surface ready for the curing.

Patented vacuum-process mats then were applied to the top surface for 30 min., under a 20-in. vacuum. They were then removed and the surface—which had taken initial set and had hardened sufficiently to bear a man's weight—was troweled smooth with a rotating floor-finishing machine. The slab was further cured with wet sand for 14 days prior to exhaustive tests to determine the effectiveness of the vacuum-process for curing concrete.

The five smaller slabs were constructed and cured in a similar manner. The 76-cu. yd. specimen representing a monolith of a dam was placed and cured inside of special steel forms equipped with the vacuum mats.

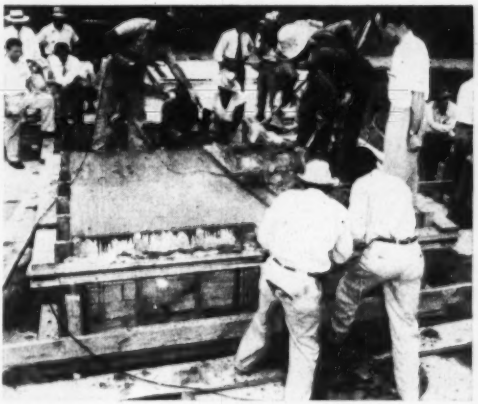
The seven test models were built, and tests on the specimens are being conducted, under the direction of H. K. Cook, chief of the Concrete Research Division. Lt. Col. R. D. King is director of the Waterways Experiment Station.

Casting, Curing and Finishing a 36-in. Slab

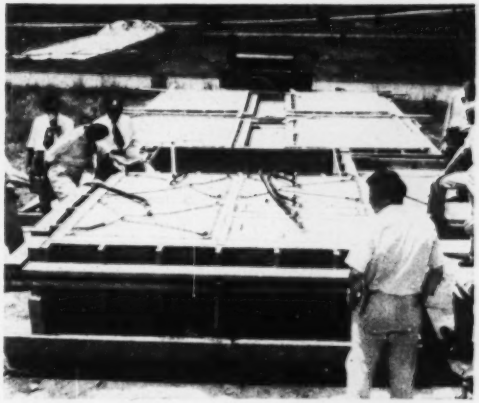


MASS CONCRETE is deposited in the forms and . . .

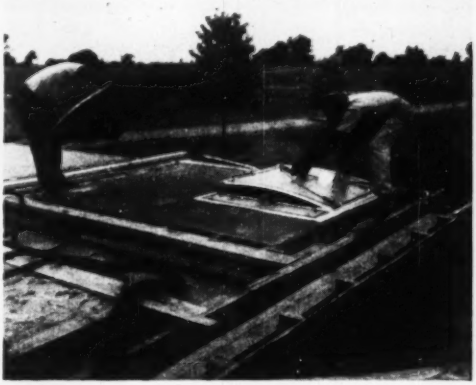
VIBRATED with a two-man, 4-in. internal vibrator. Then . . .



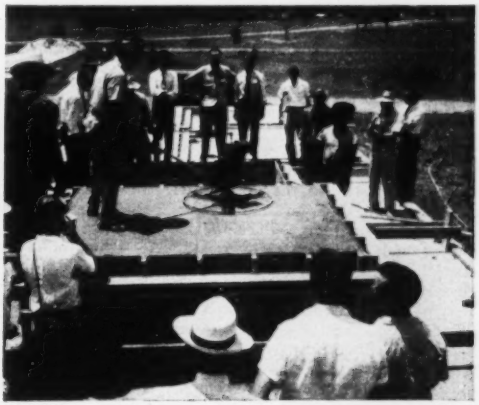
PLATFORM VIBRATOR smooths the surface, on which . . .



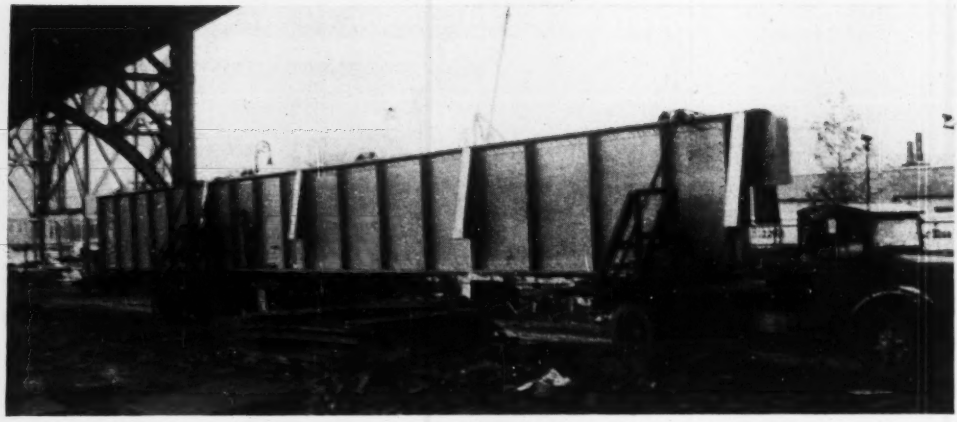
VACUUM MATS are placed for 30 min. When . . .



MATS ARE REMOVED, a dense surface supports . . .



WORKMAN who completes the job with a floor finisher.



IN SHADOW of Queensboro Bridge, plate girder arrives for transfer to flat car, which will carry it to level of elevated.

Adroit Rigging Sets 40-ton Girder

Leonard S. Wegman

Leonard S. Wegman and Co., Engineers
New York City

CAREFUL advance planning, coupled with ingenious handling, made possible the installation of a 40-ton, 100-ft. steel girder between two tracks 60 ft. above the street at New York's complicated Queens Plaza elevated station.

Located at the eastern end of the Queensboro bridge, the station is the junction of two elevated rapid-transit systems that serve part of the Borough of Queens, and is also a major traffic interchange between the elevated lines and surface traffic. It is situated directly over the main vehicular approach to the bridge as well as a two-track bridge trolley line.

Until completion of present alterations, the station consists of an elevated structure with four operating tracks and two island-type passenger platforms on each of two levels. Until the unification of the city's transit system some years ago, two independent companies used the station—one company using tracks on the north side, the other using those on the south.

Current alterations will eliminate the northerly tracks on each level, so that all trains will be served by two of the island platforms.

Work includes the construction of supports for a new 462-ft. section of track paralleling the upper-level approach to the station from the west and provision of a lower-level crossover, both for transferring trains from the north to the south platform group.

The basic problem which Peerless Construction Co., the contractor, had to solve was to accomplish the job without complete interruption of rapid transit or vehicular traffic.

Because of its size, the 40-ton girder figured most prominently in the work. One hundred feet long, this girder was designed to replace two existing 50-ft. girders supporting the two central tracks on the upper level. By increasing the span to 100 ft., the intermediate column could be removed to permit the crossover on the lower level at the west end of the station.

The ultimate position of this girder was inaccessible to cranes operating on the street. Further, the girder was too long to negotiate the standard subway curves and tunnels between the yards and this station. Only a 120-ton railroad crane could lift this 40-ton girder from the street; the elevated structure, designed for 68-ton passenger cars, was incapable of supporting such a crane. Alternatively, a fixed gantry crane and two relatively cumbersome track-mounted 25-ton stiffleg derricks were considered.

The final plan, using an extremely novel method of handling, described below, solved the problem with simplicity and dispatch. A long holiday weekend, 10:00 p.m. Friday to 5:00 a.m. Tuesday was selected for this phase of the contract because it was the only 3-day period when the cessation of rush traffic would permit certain tracks to be occupied continuously by the construction equipment.

Strange train climbs ramp

Loading at night, where subway tracks meet the street grade before rising to Queens Plaza station, the girder was transferred by two crawler cranes from a trailer truck onto the flat-car train. When it was secure on its flat car one of the strangest trains ever to travel rapid-transit tracks in New York began the long ascent from street grade to upper level. At the head end of the train was a rarely-seen subway locomotive, then a stretcher flat car, a Pennsylvania Railroad flat car carrying the girder, another stretcher flat car, then a 15-ton track crane minus its roof; and bringing up the rear, two more subway locomotives acting as pushers.

When the girder was opposite the site, the train was parted, leaving the girder car free on both ends.

Accomplishing the move off the car and into place was another example of ingenuity and simplicity. First the girder was jacked slightly off the car floor and then each overhanging end was brought to bear on grillages of timber that were built up on the track and surfaced with five well-greased

rails. Now free of the car, the girder was moved laterally on the rails, by 25-ton chain blocks, until it was directly over its final position. During this lateral shift, a system of adjustable guy cables prevented overturning.

A simple prefabricated steel gantry then was set up over each end of the girder, with the aid of the track crane. The gantry consisted of H-column uprights and a double-channel crossmember carrying a threaded vertical rod, 13 ft. long, 2¼ in. in diameter. The rod was attached by means of a clevis and a 3-in. dia. pin to clip angles riveted to the top flange of the girder. Four men then operated a special wrench, 16 ft. long, constructed of 2½ in. pipe with a ¾ in. plate in the center to grip the nut controlling the descent of the vertical threaded rod. Since the entire 40-ton girder was supported by two rods, a special ball thrust bearing at the cross-beam was devised to reduce the friction component. At four threads to the inch and four turns to the minute, the four men at each screw accomplished the 10-ft. drop to the final position in exactly two hours. At all times, the railway crane stood by as an emergency load-control unit, and the cribbing was removed only a few inches at a time below the girder.

Other methods time-consuming

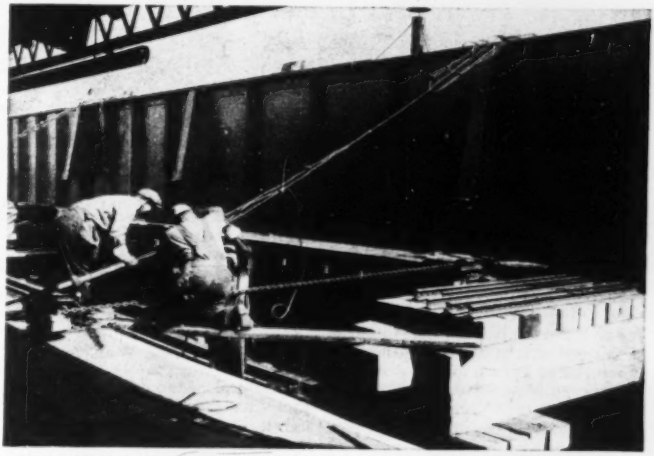
Aside from the fact that this method of handling proved to be the most practical and economical, any other methods could not possibly have been completed within the available time. At least four major pieces of hoisting and handling equipment, with operating crews, plus complicated installation and removal operations, were eliminated by the operation.

Job management

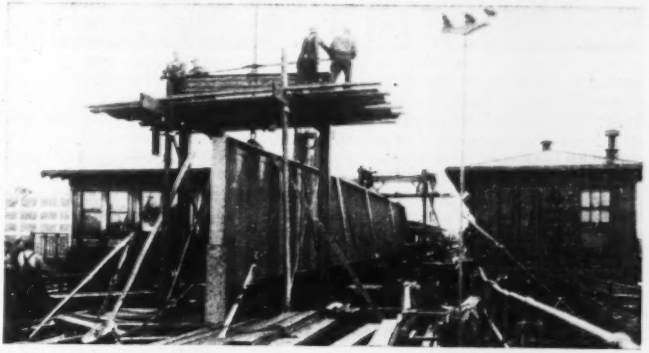
For the Board of Transportation the work was under the direction of the Construction Division, James H. Griffin, chief engineer, Charles M. Madden, division engineer and John J. Macaluso, resident engineer. The board's Operation Division was in charge of Edward McNally, superintendent, Charles M. Burke, chief engineer, maintenance-of-way, and D. C. Waite, engineer, tracks and structures.

The contract was performed by the Peerless Construction Co. of New York City under the direction of Charles Tyroler, president, with Murray Schub, field engineer, and Samuel Rodd, design engineer. Jack Fennell was field superintendent. The planning study and operation schedules were prepared by the Consulting Engineers, Leonard S. Wegman & Co., of which A. N. Friedman and the writer were on this project.

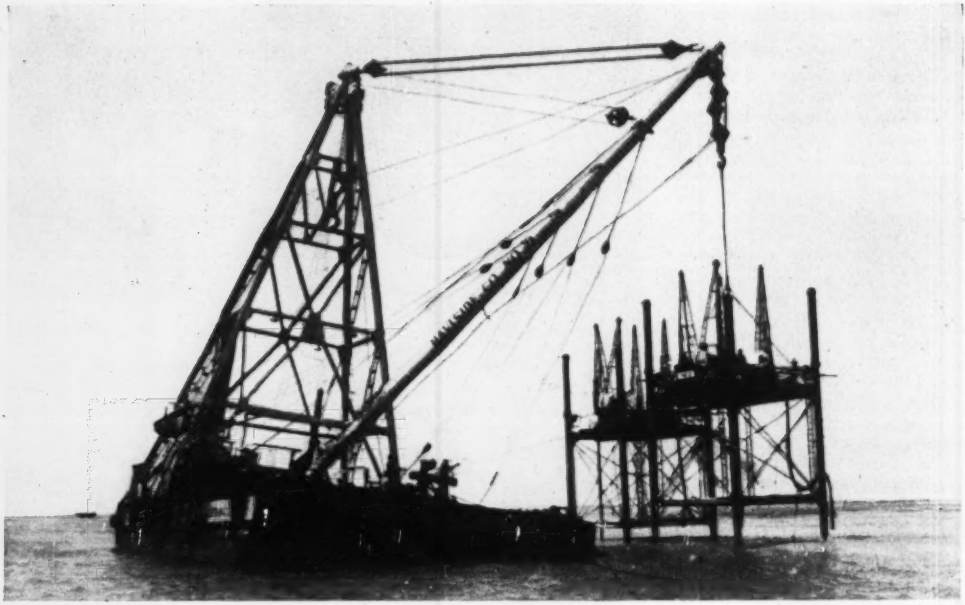
OVER THE WALL, from ground to flat car, went the girder, at point where subway track comes above ground to rise to Queens Plaza elevated station. (ENR staff photo)



AT UPPER TRACK LEVEL. Lateral shift, from flat car to position above final location, was made on cribbing and rails. Chain-hoists and adjustable guys controlled movement.



DOWN IT GOES. After gantries and scaffolds were erected near each end of girder, four-man crews turned nuts on threaded rods, to lower the girder into prepared seats.



DRILL PLATFORM, here being moved by derrick-boat, was used for testing efficiency of charges in drill holes against efficiency of charges laid on coral surfaces in Pacific island dredging operations.

Surface Blasting of Submerged Coral

Martin P. Brown
Bremerton, Wash.

EXCAVATING ship channels through submerged reefs at Midway Island and other Pacific Islands posed a serious wartime problem for the U. S. Engineer Department. Experiments had to be made with various methods of blasting, because so little applicable information was available. Now that security restrictions have been lifted, the following is presented as one of the first public records of results of these tests and the experience gained in carrying out the work.

Material in the coral reef, while varying in hardness, was found to be comparable to moderately hard limestone. A characteristic of coral is that it has no cleavage planes or other planes of weakness, the fracture is quite irregular and the material has a certain resiliency which makes cracking difficult.

Water depth in the area where the channel was desired ranged from 2 to 30 ft. and there was no protection from ocean swells in rough weather. The problem was to break up this irregular coral rock into sizes that could be handled effectively by dredges. To determine best blasting procedure comparative tests were made with powder charges exploded in drill holes and, on comparable bottom, with charges merely placed on the surface of the coral.

Despite the provision of a special platform to facilitate drilling, when the 3½-in. holes were cased as drilled and even after being flushed out repeatedly, the holes tended to fill quickly with coral fingers and sand. Washing and jetting and the need for loading tubes consumed so much time that drilling was considered impractical for a job involving so large a number of shallow holes. It was concluded, therefore, that surface blasting, although requiring a greater amount of explosives, would be considerably cheaper and quicker than drilling holes for the charges.

Eleven explosives tested

To determine the best surface blasting procedure eleven kinds of explosives were tested: 40 percent gelatin, 40 percent special gelatin, 40 percent high velocity gelatin, 40 percent straight dynamite, 50 percent ditching dynamite, 50 percent straight dynamite, 60 percent giant gelatin, 60 percent straight dynamite, 60 percent gelatin, 60 percent quarry gelatin and 60 percent high velocity gelatin. These explosives, in 25-lb. charges spaced 15 ft. both ways, were shot on comparative bottom. Under these conditions the best results broke up the coral for a depth of about 5½ ft.

After studying the results of careful soundings and probings (made before and after the blasts, with a ¾-in. pipe and 85 psi. of air pressure) it was decided that the desired 10-ft. depth (average) of each cut would be achieved by using 50-lb. charges of 60 percent gelatin on spacings of 15 ft. both ways.

Accordingly, the work was done with this explosive—about 400 tons was placed and held on the bottom at desired spacing with the aid of a net of nine-thread manila rope, as shown in the accompanying drawing.

The channel was to be dredged in two cuts; in each of which the coral would be broken for the dredges by a blasting operation. The upper cut extended from the coral surface to —22.0 ft. and the lower cut from —22.0 to

−32.0 ft. Before the work started on the upper cut the average water depth was 10 ft. though there were a number of places where it was only 2 or 3 ft. deep. In the shallower depths, the tremendous height to which the water was thrown by the blast made it obvious that much of the energy was wasted. In depths of 25 ft. or more, on the contrary, even with large charges, there was a confining reaction from the water load that resulted in greater rock-breaking effect.

Two modifications of the rope-network method should be mentioned: (1) Before the main blasting operation could be carried out as planned it was necessary to remove high spots or "coral heads" that interfered with the movement of the powder barge. These high spots were blasted with 50-lb. powder charges lowered on approximately 15-ft. spacings from a small boat. This method was effective in water too shallow for the powder barge to traverse but it was slow and the size of the blast had to be limited to about 800 lb.

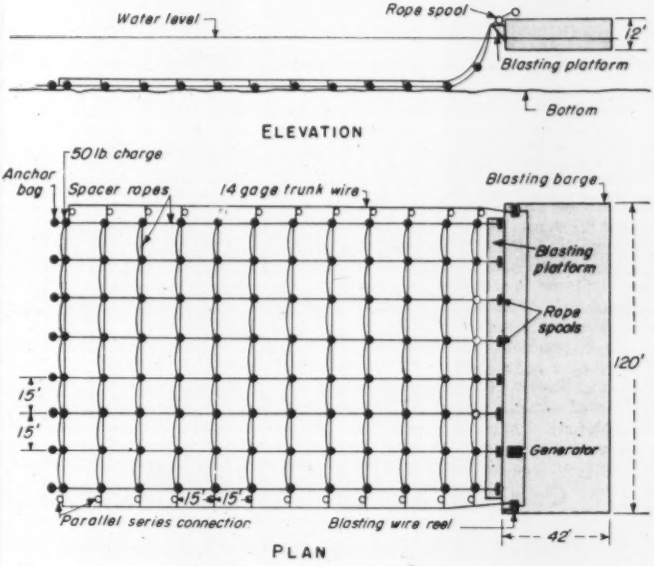
(2) Outside the reef at the mouth of the channel where water was deeper (−27.0 to −32.0) it was found that a particularly hard crust 4 or 5 ft. thick could be shattered more effectively with 35-lb. charges on spacings of 10 ft. both ways.

Operation of the powder barge

For placing the pattern charges in the main channel there was available a 46x120-ft. wooden barge on which were four steam winches with 1,800 ft. of cable on each drum. These cables were passed out through roller chocks to anchors so placed as to allow the barge to move on the cables in a straight line across the channel. This made it possible to assemble the rope net on the barge deck, attach the explosives at the proper intervals and pay out the net and charges in proper positions across the channel.

Dynamite for blasting was removed from the cases, securely tied in 50-lb. bundles, each primed with a No. 8 electric blasting cap and placed in a burlap sack with enough sand to make it sink. The cap wires were run out of the mouth of the sack and were tucked under the binding ropes until ready to be connected in the firing circuit. Charges prepared in this manner were primed and stored on a small island until needed.

On the powder barge, preparation was made by coiling lateral and transverse spacer ropes on the deck so that the network could be launched without entanglement. Powder charges were arranged in eight piles, ten or twelve charges to the pile, and a charge



ROPE NET kept proper 15-ft. spacing between 50-lb. charges. Net was found to be best arrangement for surface blasting of coral reef.

was tied at each intersection of spacer ropes. Finally, cap wires and lead wires were connected in a parallel-series hookup. The complete network assembled on the powder barge at one time included spacer ropes and charges to cover a 105x165 ft. area.

Upon completion of the deck assembly and with the powder barge in carefully checked position, one man was stationed at each pile of powder charges. At a given signal the first row of charges (weighted with an extra sack of sand) was lowered into the water. When this row reached the bottom, the barge was pulled by the winches along the range to be blasted. As the ropes to the first row of charges tightened, the next row was placed in the water and so on until the entire network was uniformly laid out on the bottom. The barge was then stopped until the position of the last row of charges could be located both by sextant and by range intersection. After pulling away usually 300 or 400 ft. the blast was detonated.

In the ordinary blast about 2½ tons of powder was fired. Placing the charges was rather slow at first. Later, five or six blasts were placed and fired in an average 8-hr. day. The blasts produced a large wave that rocked the barge but the shock was not severe.

The steel-hulled dredges, however, moored 600 ft. or more away when the first blast was fired, felt the shock more severely. The blast opened icebox doors and broke gages in the boiler room. For subsequent blasts the dredges were moved 3,000 or 4,000 ft. away.

Initial work on the channel included both blasting and dredging of the first cut and blasting of the second cut. An 8-cu. yd. dipper dredge on spuds removed the bulk of the hard material in the first cut assisted by a 20-in. pipeline suction dredge and a 6-cu. yd. clamshell. Only a few particularly hard spots had to be reblasted before the material could be handled effectively by these dredges. It was possible for the dredges to move some of the unblasted material with difficulty. Blasting increased the output of the dredges to two or three times what could be done without blasting.

After dredging of the upper cut and blasting for the second cut, numerous test holes were put down by the clamshell dredge to the ultimate depth of −32.0 ft. to determine the efficiency of the deeper blasting. Ninety-five percent of the coral was found to have been so shattered and fractured that it could be handled readily by the hopper dredge. It was believed that the remaining 5 percent could be broken up by the heavy drags of the dredge until it would be possible to move it in the usual manner.

The work was done by the U. S. Engineer Department under the immediate supervision of the district engineer, Major P. E. Bermel. The writer was assistant engineer on the project; C. B. Jones directed the tests

made to determine the most effective blasting methods.

Editor's note

After the foregoing report had been prepared for publication a fortunate circumstance brought ENR editors into contact with Wm. H. Acheson who had charge, during the war, of an enormous amount of subaqueous blasting for the Navy. Acheson had been in charge of blasting work done by Budocks on numerous important Navy bases built in the Pacific and later authored the "Acheson Report," compiled to record essentials learned about subaqueous bulldozing.

Acheson kindly consented to examine the Brown manuscript and to write some supplemental notes. These are subjoined.

In only one respect are the two authors in disagreement, namely, as to the reliability of subaqueous propagation of a detonating effect. On two occasions Brown recovered undamaged 50-lb. charges of 60 percent gelatine from the water after other charges had exploded 15 or 20 ft. away. As such unexploded charges would constitute a serious danger in subsequent dredging operations, his crew thereafter primed every charge and wired it to the detonating circuit.

Acheson, on the contrary, emphasizes the fact that multiplicity of primers is unnecessary in water exceeding 4-ft. depth and that detonation may be propagated 1,300 ft.

This difference of opinion is probably best disposed of in Acheson's final paragraph, emphasizing the desirability of further detailed study and accumulation of facts.

Comment on Subaqueous Blasting

Wm. H. Acheson

Experience at Midway, recorded in the foregoing article, was duplicated in many parts of the Pacific at about the same time and each experiment produced some contribution to the art of submarine blasting—a skill which has an important, if limited, place in the preparation of ground for peacetime dredging. In every case now on record 60 percent gelatin was found to be the most effective explosive-shattering agent but USED at Midway deserves credit for the conclusive and independent research outlined in Brown's report, which eliminated the use of other powders. It is possible now to order this explosive with a "submarine wrap" which is somewhat more costly but is justified for bulldozing due to the excessive handling involved.

The studies on penetration (or shattering effect), while scientific, may be somewhat misleading in that coral, as a material, varies so widely as to density, cleavage and other characteristics. This writer feels that in general most effective results in all conditions of coral bulldozing are obtained with 50-lb. charges on 10-ft. centers.

Equipment—The Midway barge was much too large and cumbersome. Under most conditions the size of single blasts must be limited. In many operations a heavy duty inboard-motor boat with a platform and chutes at the stern can do the job quickly and well. A small, low lying, self-propelled barge is ideal for laying the main unprimed grid. Such a grid suitably marked with a small buoy can be shot by a small powder boat carrying one primed charge and an adequate reel of firing line.

A great advantage of this plan of operation is that the firing can be done under controlled conditions and at will, since a grid, under normal conditions, can lie in the water for a week or more before being detonated without any apparent loss of efficiency. Obviously, reasons of safety make it desirable to avoid such delays except where necessary.

Marking—Range markers are as important in blasting as in dredging and, speaking generally, the same ranges may be used in both operations. Brown reports loss of a certain charge in the Midway operations. This writer believes that no grid should ever be placed without suitable markers.

The ideal markers are balsa wood or cork floats, such as are used in gill-netting in the fishing industry. Anything that floats will do; a soldered tin can, or a life jacket. To locate the grid for firing it is only necessary to tie one marker to the first and one to the last charge. In any grid it is only necessary to attach the float to it by a light line whose length is determined by adding to the water depth and the height of the tide suitable allowance for swell. The floats thus used are seldom damaged and can be recovered after the blast.

Method—Character of material to be shattered dictates the size and spacing of charges. When adequate ranges are established and the boat or barge is rigged with platforms and chutes the charges should be placed, using *no caps*.

When one or more grids are laid and marked and the appropriate time for blasting is at hand, a small, well-controlled boat containing a reel with 1,000 ft. of line and an uncapped primer for each grid can fire each grid singly. Caps should be No. 8 or better and should be kept in a cotton-filled box until just before the charge is primed and lowered on the grid. It is not necessary to use two caps to insure detonation, since the grid markers are always in place and a second primer can be used in case of broken wires or other failure. Propagation was well proven during the war and can be depended upon if above conditions are maintained.

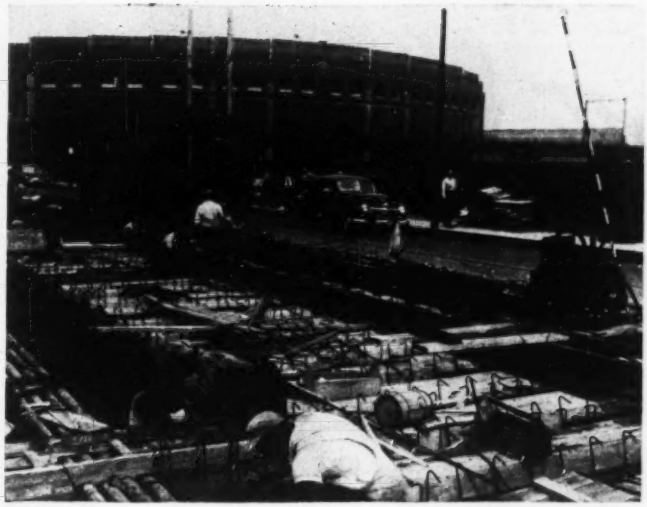
The Midway method called for weighting the charges with sandbags. Except under extreme current conditions, it is unnecessary to weight charges at all. They sink to the bottom very rapidly and remain in place, particularly where tied into a grid.

Variations—In warm waters and for depths up to 30 ft., skindivers can be used to place charges rapidly and intelligently on uneven terrain or for special conditions. Conventional diving equipment can be used in colder waters.

Caution—One shudders to contemplate what might have happened at Midway if two or more grids had been placed near one another, relying on an electric impulse to detonate them individually. In one instance in Apra Harbor (Guam) two coral heads 1,300 ft. apart, were charged individually with 4,000 lb. of 60 percent (uncapped) gelatin. One primed charge was detonated on one head and the other charge *containing no caps* was detonated by propagation.

Propagation—Based on extensive experience, this writer believes that in any grid where 50-lb. charges of 60 percent gelatin are located within 20 ft. of each other and are under more than 4 ft. of water one cap in one charge is all that is required to detonate the entire field regardless of its size. Hence, the network wiring of all charges, as in the Midway operation, is completely unnecessary and the capping of any charge except the primer contributes nothing to the success of the blast.

Summary—The work done by USED at Midway deserves much credit. If the scope of this operation had been greater it is likely that propagation and better marking methods would have evolved and that more efficient equipment would have been developed. The report and these comments suggest a need for a detailed study and the accumulation of known facts concerning this interesting and practical phase of blasting in advance of dredging.



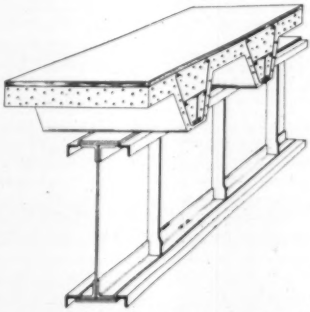
REPAIR JOB IS SPEEDED to completion in time for opening day of football season

Bridge Is Strengthened as Traffic Keeps Moving

FOUR THOUSAND VEHICLES a day had to be kept moving. And—because Philadelphia's South Street bridge is on the main road leading to Franklin Stadium—the job had to be completed in time for football season in the early fall. The bridge carries automobile, truck and street-car traffic, and there is a steady flow of vehicles at all times. Because of this, and the lack of a suitable alternate route, one-way traffic had to be maintained.

Built in 1910, the bridge required a complete reinforcing and redecking job on 440 ft. of its west approach. This approach has nine spans—each carried by four longitudinal plate girders supporting 9-in. I-section cross beams covered with buckle plates, concrete fill and granite block paving.

The two interior plate girders required strengthening by welding-on four reinforcing angles. The columns required a similar reinforcing. The cross beams were too light for existing traffic conditions and loading, but rather than invest in new steel, it was decided to create composite steel and concrete members using the cross beams as a major portion of the reinforcing steel required. The resulting section is shown in the accompanying illustration.



ANGLE IRONS are welded to interior plate girders as part of strengthening.

Agreements were first worked out with the local transit company to install switch facilities so that trolley traffic could be handled on either of the two tracks, allowing the other to be removed during construction operations. The redecking contract was then advertised and let to Robert E. Lamb & Son, Inc., of Philadelphia.

Before starting welding, the girders were shored with 12x12 timbers to relieve the stress in the beam, and to take up most of the deflection. To insure a good bond with the weld metal, the girders were thoroughly cleaned by sand blasting. Sand blasting was also used to clean all excessively corroded portions of the girders, which were then covered by new plates welded into position. The battery of nine welding machines was fed from a special line brought into the job by the Philadelphia Electric Co. All welding operations were performed by approved welders.

Prefabricated concrete forms

Conditions at the bridge made it difficult to erect the concrete forms at the site, so they were prefabricated at the contractor's yard. Although they were made in several sizes as required to fit into the spaces between the structural members of the bridge, reuse of the forms was frequently possible. The forms were hung from the existing steel by wire saddles. Three pours of 200 yd. each were made on each half of the approach.

All work on the project, with the exception of painting and asphalt paving, was performed by Lamb under the direction of Edward I. Troiani, Superintendent. The owner was the City of Philadelphia, Department of Highways. Engineering was by Day & Zimmerman, Inc.

Cities Zone for Refuse Collection

Cities must supplement their refuse collection equipment and manpower with proper zoning for efficient work, experience has shown.

Leo Wheeler, sanitary engineer for the North Dakota State Department of Health, said recently that municipal officials must remember that the problem of collection is not solved by simply buying equipment and hiring adequate manpower.

"Municipal officials of an average city of from 1,000 to 10,000 population are finding it increasingly necessary to zone their cities for refuse collection," Mr. Wheeler said.

Detailing the steps, he said that:

1. It is first necessary to decide what is the required frequency of collection, based on types of use of property in the zones;

2. Determine the average number of different types of collections that may be necessary;

3. Actually lay out the zones which will be based on the required frequency of collection, the average number of collections a crew can handle per working day and starting point and full load points with respect to the city's garage and disposal point.

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DEVELOPMENTS ABROAD

Industry

France—Sollac (Societe Lorraine de Laminage Continu) privately-owned associate of nine French steel firms, has placed an order for $9,500,000 worth of electrical steel mill equipment with the Westinghouse Electric International Co, of New York. The order comprises electrical equipment for two new steel mills at Hayange and Ebange, neighboring towns in the iron ore-producing Moselle sector of northeast France. When completed, these mills will process a minimum of 850,000 tons of raw steel annually with light plate sheet steel and tin plate.

Under an industrial recovery project approved by the Economic Cooperation Administration a new electric-powered blooming mill will be installed for the Societe Lorrainine des Acieries de Rombas.

Italy—ERP funds and American machine tools are to effect reorganization of Italian electrical and general engineering plants under the name of Ansaldo, Odero-Terni-Orlando and San Giorgio of Genoa. Of the 23 shipbuilding berths controlled by the concern, only 11 will remain in existence at Genova Sestri The Muggiano and Leghorn yards are to be entirely rebuilt with modern shipbuilding machinery to be imported from the United States under ERP account.

India—The $4,000,000 cement factory being built by Vickers Armstrong for the United Provinces provincial government is considered to be one of the best equipped in the world. Situated at Mirzapur between Allahabad and Benares, it will have a 200-metric ton-an-hour crushing plant and two closed circuit raw material grinding mills with an output of 28 metric tons (dry) per hour. Two 11-ft. 6-in. dia. rotary kilns, each able to handle 350 metric tons a day, and two closed-circuit cement grinding mills 9 ft. in dia. by 24 ft. long, with a capacity of 22 metric tons per hour each, will be used.

Plant Reconstruction

Italy—Projects for the reconstruction and modernization of two steel plants which were completely inactivated during the war by Allied bombing and subsequent German demolition have been approved by the Economic Cooperation Administration, it is announced in Washington and Rome.

The projects provide for ECA assistance in rebuilding steel plants of Ilva, a subsidiary of Finsider, at Bagnoli and Piombino. Costs are estimated at $57,000,000, including $12,007,000 in ECA assistance funds. Counterpart funds and some from private sources will also be used. Much equipment will be purchased in the United States. Reconstruction of the Piombino plant is more than half completed. With three blast furnaces, there will be integrated operation with a capacity of about 850,000 tons per year.

France—Two recovery projects for oil refineries have been approved by the ECA, including a total expenditure of $20,435,000, of which $3,900,000 represents ECA funds. The projects are the rehabilitation and expansion of the Donges refinery near St. Nazaire, owned by Raffineries Francaises de Petrole de L'Antantique, and work for the Compagnie Francaise de Raffinage, consisting of the installation of lubricating oil equipment at the Gonfreville refinery, in northern France and alterations on a cracking unit at the La Mede refinery near Marseille.

Power

Brazil—Paulo Afonso Falls, with a huge hydro-electric potential, is expected to be put to work in the next few years to serve Brazil's power-short and backward northeast section.

By 1953, the government engineers hope, energy of the water dropping 270 ft. into a gorge in the São Francisco River will be converted into 120,000 kw. Plans call for the eventual production of 900,000 kw. if conditions warrant it.

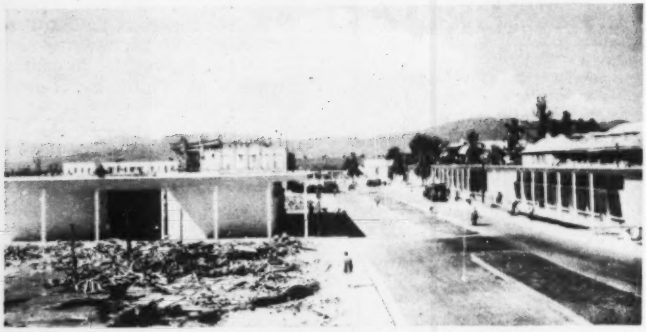
By official estimates, the initial step alone—production and transmission of 120,000 kw.—will require an expenditure of $43,000,000. Today the five states which will be served by Paulo Afonso power—Bahia, Sergipe, Alagoas, Pernambuco and Paraiba—have only about 100,000 kw. and development of the region is seriously hampered by power shortage. It is forecast that users of this new power source, even at a distance of 250 miles, will pay only one-half what their electricity from thermal-electric plants costs now.

A concrete dam will be built some 2,460 ft. upstream from the falls. This dam, in fact, will be two dams. The east one, length 10,200 ft., will be about 80 percent spillway. Its maximum height above its foundation will be 59 ft. It will cross the São Francisco's main stream, branches and many islands.

The other dam, making a sharp angle with the east structure, will extend 4,280 ft., forming a sort of dike to prevent the water from spilling off into the flat land to the west. Maximum height will be 59 ft.

There will be two tunnels 15½ ft. in diameter and each feeding a 60,000 kw. generator. The total drop will be about 270 ft. The power station will be underground below the falls, hewn out of solid granite with some strains of gneiss.

NEW TRADE CENTER—This scale model shows how the new Trade Center at Rotterdam, the Netherlands, will look. The ornate 7-story building two blocks long will cover a ground area about twice that of the RCA Building in New York City. It will take the place of the former home lost by Rotterdam trade organizations when the Germans bombed their city so disastrously in the war. (Acme photo)



ANOTHER WORLD'S FAIR—Haiti is preparing for a world's fair to open this December. Known as the "Festival of Peace," it celebrates the 200th anniversary of the founding of Port-au-Prince. Among the nations erecting pavilions on the above site are: the United States, France, Belgium, Italy, Venezuela, Mexico, Guatemala, Honduras, and Peru. Costing $26,000,000, the fair will have industrial, agricultural, and scientific exhibits, and entertainment features. It will run for six months, after which the buildings will become a permanent part of a new city, "Dumarsais Estime City," in honor of Haiti's president. (Wide World Photo.)

Some government planners believe that industry will move into the valley once adequate power is assured. Transportation is still a major problem, and irrigation another.

Westinghouse Electric International has obtained contracts to supply $3,225,000 worth of equipment to the Companhia Hidro Electrica São Francisco, which is to convert the water power of the Paulo Afonso Falls into electric energy..

The equipment consists of turbines, transformers, generators and auxiliary electric material. The company, which had budgeted the expense at $6,219,000, received bids from factories in the United States, Canada, Great Britain, Sweden, Switzerland, Belgium, France, Italy and Germany. It made the award to Westinghouse, whose bid was only slightly over half estimated cost.

Union of South Africa—Extensive programs have been prepared for initial installations of plant in four power stations alone by the Electricity Supply Commission to help meet the continually increasing demand for electric power. Last year the commission generated over six billion units, an increase of 15 percent over 1947.

Turkey—The Turkish program for developing electric power, flood control and irrigation facilities will be aided by a six-months study of U. S. hydroelectric developments by two Turkish government engineers—Riza Tezulas and Suleyman Demirel. They will be under ECA sponsorship while being trained in the U. S. Bureau of Reclamation facilities and with private contractors building hydroelectric projects.

New Zealand—Start of construction on the 320,000 kw. Roxburgh hydroelectric project climaxes New Zealand's postwar efforts to overtake accumulated power and coal shortages. Since 1935, hydro stations have been completed at Piripana, Cobb, Highbank, Karapiro and Kaitowa, adding 200,000 kw. Extensions at Arapuni, Tuai and Wastaki contributed another 150,000 kw. Future requirements will be partly met by two major stations now under construction in the North Island—Maraetai, 180,000 kw. and Whakamaru, 100,000 kw.

Italy—Prime Minister De Gasperi has just opened two new hydro-electric power stations built by the Montecatini Co. at Castelbello and Glorenza in the Val Venosta where the Italian, Austrian and Swiss frontiers meet. They will generate some 650 million kw. a year and are the first step towards the construction of a great hydro-electric basin in the Dolomites which will harness the waters of the Adige, Sarca, Noce and Piave rivers. It is expected that in a few years it will be producing some six billion kw., or about one-fourth of the present Italian output of electric power.

Portugal—First of four power dams on the Zezere River, a tributary of the Tagus in central Portugal, is scheduled to begin generation soon.

It is the Castelo-do-Bodo dam. Work on its first section, a 749-ft. diversion tunnel, was finished two years ago. Castelo-do-Bodo is an arch-type concrete dam, with a maximum height of 377 ft. Its reservoir will store 867,500 acre-ft. of water at a maximum gross head of 312 to 213 ft. Volume of concrete in the final structure will be 523,000 cu. yd., (Grand Coulee, 10,500,000 cu. yd., 10,000,000 acre-ft. storage).

Castelo-do-Bodo's spillway was designed for a discharge of 145,000 cfs. The design resulted from numerous tests which led to the selection of a system of forced discharge through two large openings. Flow through each can be regulated by sector pivot gates. Ultimate discharge measures were restricted by the small space between the power house and the river bank; so a system of vertical discharge, joining the channel at the level of the natural flow, was devised.

The power plant will have three 62,000 hp. vertical turbines, served by 13.-ft., 2-in. dia. penstocks. British firms supplied almost all the construction plant and all electrical equipment.

Three other dams are to be buit on the Zezere River, one between Castel-do-Bodo and the Tagus, the other two upstream from Castel-do-Bodo. They will be 39-, 213- and 410-ft. dams respectively, with power plants of 12,000-, 90,000- and 146,000-hp. repectively. Castel-do-Bodo's firm annual generation is to be 380 million kwh. yearly, with the other three plants adding 320 million kwh. more each year.

Housing

Puerto Rico—The insular housing authority has submitted to the U. S. Public Housing Administration a requisition for the construction of 29,400 low-rent housing units during the next six years, 6,800 units in the first two years.

Mexico—The Mexican Direccion de Pensiones has placed in service a large housing project consisting of nine blocks of apartments of 13 stories each, and six of three stories each—to house 1,080 families. The project is part of a program to provide housing for government employes who cannot pay the current rents for adequate housing in the capital. Rents will be the equivalent of from $10 to $18 per month.

Australia—Imperial Chemical Industries of Australia and New Zealand Ltd. has announced a $5,000,000 housing plan for workers as part of the expansion of the Deer Park, Victoria, plant. Construction has already started on the first fifty of the 600 dwellings which I.C.I.A.N.Z. plans to set up on 188 acres. Workers will be able to buy the houses at cost, $6,825, in weekly installments of $6.12.

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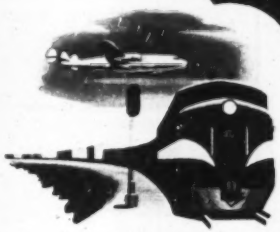
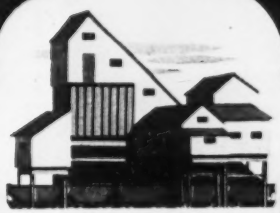


TRANSPORTATION



MINING

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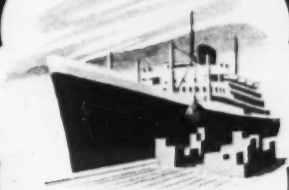

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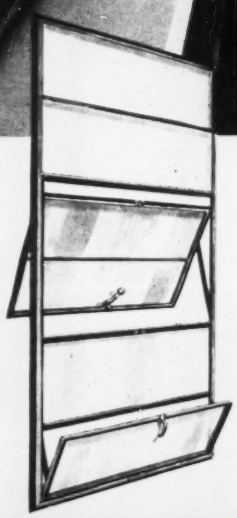
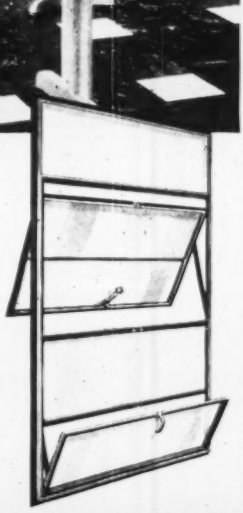
ARCHITECTURAL PROJECTED—1. Same type of controlled ventilation as with Intermediate but more economical. 2. Frame section has similar $\frac{1}{2}$" return on inside. This provides space for attaching window accessories. 3. Extra strength provided in frame—$1\frac{5}{8}$" deep. Ventilator is even heavier—$1\frac{1}{2}$" deep. 4. Treated with Bonderite process.





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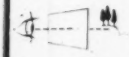
Investigate the availability of daylight in your area . . . It is important to know the amount of available daylight so you can plan for adequate illumination. The United States Weather Bureau records provide information showing the average number of clear days anywhere in the United States. For complete information, consult the United States Weather Bureau.



Explore the importance of distant vision . . . Medical science recognizes the importance of distant vision. Strain on the body, eyes and the mind is relieved through looking at distant views. Consult medical authorities for additional information on this important point.

Find out what type of window lets in the most daylight—assures distant vision . . . As a preliminary aid, consider these facts . . . steel windows admit more daylight than any other type of window design since they employ clear glass. Full height steel windows also provide more distant vision than any other window opening. There is less obstruction since frames and muntins are slender.

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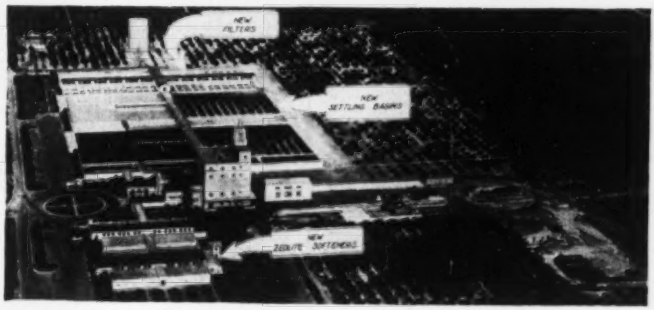
MUNICIPAL AFFAIRS



NEW FILTRATION PLANT—The present and the ultimate future development of the water softening and filtration plant of the Southern California Metropolitan Water District at La Verne are shown in this picture. The second unit costing $4,000,000 was dedicated Aug. 31. It handles 100 mgd. Initiating operation of the new facilities—which double the capacity of softened and filtered Colorado River water to 200 mgd.—were Franklin Thomas, president of ASCE; Joseph Jensen, chairman of the board of directors, Metropolitan Water District; Preston Hotchkis, president, Colorado River Association, and Julian Hinds, general manager and chief engineer for the district.

Water Supply Matters

Philadelphia, Pa., voters, by a large majority, have approved a bond issue including $12,000,000 for the further development of the city's water supply system, replacing outworn equipment and extending service to new housing.

Ohio Health Department has approved the plan to link Berlin and Meander reservoirs in the Youngstown district by means of a 9-mile pipeline, assuring the district a future water supply of 64 mgd. Cost of the project has been estimated at $4,853,000. The plan was approved by the Chief of Army Engineers last spring and a 50-year contract for the purchase of water from Berlin reservoir is under negotiation.

Construction of a multi-million dollar dam on Big Walnut Creek, east of Columbus, Ohio, to give that city an adequate water supply for the next 50 years, has been approved by the Scioto-Sandusky Conservancy District. The dam will provide 47 mgd. Bonds will be issued to finance the project, and a vote of the people probably will be necessary. Present plans call for the dam to be built in two different phases. First step would be a dam costing $10,000,000, including the land and a filtration plant. Later, an additional dam would be built. Acquisition of 3,500 acres of land will begin at once.

Weight of fill-in earth was blamed for the second break in less than a year in the Columbus water main system, precipitating a city-wide water stoppage on Sept. 13.

Sewers and Disposal

Voters of Cincinnati, Ohio, at the Nov. 8 election will be asked to approve a bond issue which would include $2,000,000 for sewers, while a sewer construction program of the same amount at Indianapolis, Ind., has been delayed because of uncertainties over the city's bonding powers.

The proposed new city storm sewer system of Bismarck, N. D., is scheduled to be started this fall for 1951 completion.

Nearly $7,000,000 of the $16,000,000 to be spent eventually on the sewage disposal project of Portland, Ore., is already represented by contracts let and construction finished. Gordon L. Buret, formerly city manager of Hayward, Calif., has been employed by Portland as sanitary engineer to be in charge of construction.

Officials of Provo and Orem, Utah, are discussing the possibility of constructing a jointly-owned and operated sewage disposal plant.

Oliver Blase, chairman of the St. Louis, Mo., County Planning Commission, is urging closer co-operation between the city and county of St. Louis in the development of an integrated sewer system for the county that would connect with the major trunk line sewers of the city.

Dalton, Ga., plans improvements to its sanitary sewage system to cost about $1,722,000, including two new treatment plants. Wiedeman and Singleton, Atlanta, are the engineers.

A new sewage disposal plant at Winchester, Va., is expected to be in operation by the first of December.

Voters of East St. Louis, Ill., next spring will pass upon a proposed $2,500,000 bond issue as part of a $9,000,000 program for modernizing and extending the local sewerage and drainage facilities.

A possibility that the industries of Niagara Falls, N. Y., may be compelled to treat their own waste materials before dumping them into city sewers looms as one result of a current sewer survey by the Air Pollution Control department. A suggestion has been made that the city turn over to the Air Pollution Control department all matters pertaining to sewers.

Meanwhile, it was reported, plans are under way for changes in the air pollution control ordinance which would tighten control of effluents dumped into city sewers which might lead to dangerous gases being generated.

Of four bond issues for public improvements in Philadelphia, Pa., totaling $69,150,000 recently approved by the people of that city the largest is for $40,000,000 for the sewerage system, including the construction of new sewage treatment plants on land yet to be acquired.

Large Scale Housing—Largest housing development in the Toledo, Ohio, area is a $9,000,000, 840-unit apartment project planned for Washington Township, by Archie Stone and Jack Brown, both of Toledo. The project will consist of two-story garden type apartments with 20 units in each of 42 buildings, at Laskey and Jackman Rds. Plans were drawn by P. J. Bradshaw & Associates, St. Louis. The units will be built by H. B. Deal & Co., St. Louis. The project will be privately financed and insured by the Federal Housing Administration.

What is reported as the lowest rental housing project in Canada, has been started at Yarmouth, N. S., by J. D. Cohen, in cooperation with the town of Yarmouth and the Central Housing & Mortgage Corporation, a subsidiary of the Dominion government. Six buildings, each to contain four apartments will be erected. Some of the 24 will be ready for occupancy at the end of this year. Each apartment will rent at $5 per week, and will have a kitchen, living room, two bedrooms and bath. There will be 700 sq. ft. of floor space in each apartment. The town council of Yarmouth has provided free water and sewerage connections and a reduced tax on the buildings and land.

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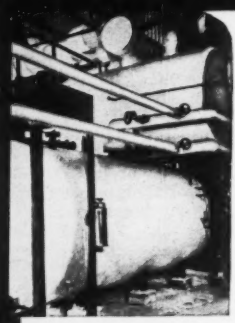

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Elections and Activities

K. R. Scott, Greensboro, division bridge maintenance supervisor of the highway commission, has been elected president of the North Carolina Highway Employees Association. He succeeds T. F. Royal, of Wadesboro. Other officers, Withers Davis of Clinton, senior right-of-way engineer, vice-president; and Otis M. Banks, auditor of the commission's prison department, secretary-treasurer.

Past presidents of the Engineering Society of Buffalo, N. Y. were honored at the seventh annual dinner meeting of the society. J. Lloyd Walker, outgoing president, introduced these 14 past presidents: George T. Parker, Jr., Karr Parker, William J. Gamble, William T. Huber, Roswell Farnham, Louis A. Harding, August E. Klinger, Elwood T. Larkin, John G. Ullmann, Thomas L. Maver, Felix E. Prochnow, Robert K. McKeegan, Clair O. Dean and Gordon A. Nichols. New officers are: President, George R. King; vice-president, Alexander Grabhorn; secretary, Volney M. Holmes, and treasurer, Clarence J. Hayes.

MAJOR MEETINGS

Federation of Sewage Works Associations, Hotel Statler, Boston, Mass., Oct. 17-20.

Metal Congress and Exhibition, also American Welding Society, Public Auditorium, Cleveland, Ohio, Oct. 17-21.

American Public Health Association, Hotel Statler and Hotel New Yorker, New York City, Oct. 24-28.

37th National Safety Congress, Stevens Hotel, Chicago, Oct. 24-28.

National Conference on Industrial Hydraulics, Sheraton Hotel, Chicago, Ill., Oct. 26-27.

Engineers Council for Professional Development, Edgewater Beach Hotel, Chicago, Oct. 28-29.

American Institute of Steel Construction, Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 31-Nov. 3.

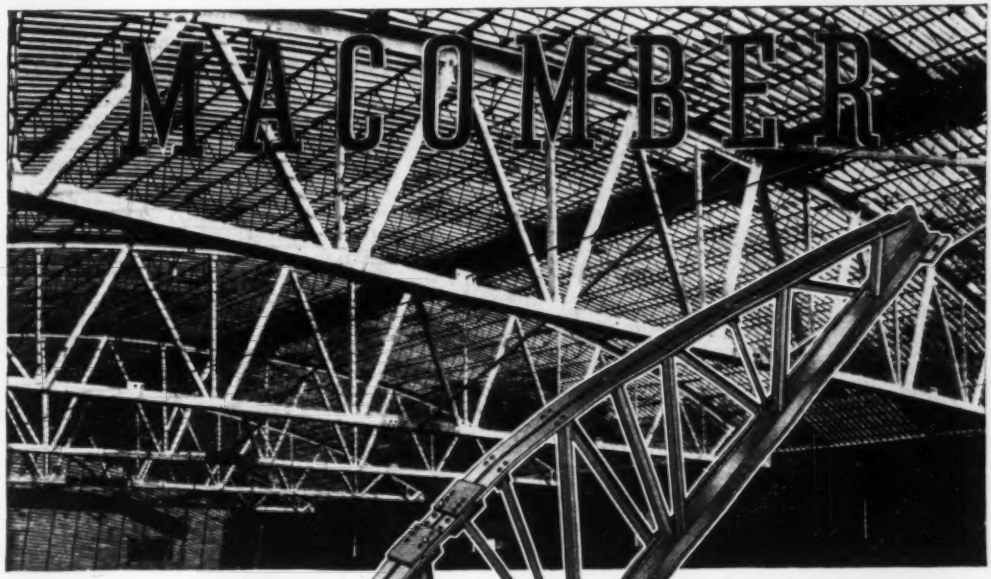
Building Officials Conference of America, Wardman Park Hotel, Washington, D. C., Oct. 31-Nov. 4.

National Reclamation Association, Hotel Newhouse, Salt Lake City, Utah, Nov. 2-4.

American Society of Civil Engineers, fall meeting, Hotel Statler, Washington, D. C., Nov. 2-4.

National Council of State Boards of Engineering Examiners, Sheraton Plaza Hotel, Daytona Beach, Fla., Nov. 10-12.

National Association of Housing Officials, Hotel Statler, Boston, Mass., Nov. 13-16.



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EDUCATION and RESEARCH

Graduate Industrial School

The first graduate school of industrial administration opened experimentally Sept. 19 at Carnegie Institue of Technology, Pittsburgh, Pa. It will prepare men for management positions, primarily in technological industries where understanding of modern technology is important.

George Leland Bach, head of Carnegie's economics department and acting dean of the new school, says the formal opening will be a year hence, when the school will give a two-year graduate program beginning with the senior year and leading to a Master of Science degree in Industrial Administration.

The school was founded last winter by a $6,000,000 gift to Carnegie Tech from the W. L. and May T. Mellon Foundation. About $1,000,000 of this grant will be for a new building to house the school.

Architects Marlier & Johnson, Pittsburgh, report the building will be of modern functional design. Rooms will be fluid (sliding panels for partitions). The building will be on the campus 400 ft. northwest of the George Westinghouse Memorial in adjoining Schenley Park.

School opened experimentally

The school has opened experimentally with six specially-selected students who last June had received bachelor's degrees from Carnegie's undergraduate department of industrial administration, and have had some experience in management positions, primarily in technological industry. The faculty, so far, consists of seven professors.

Work will focus on defining and handling problems; understanding and learning to use fundamentals of management engineering and economics; and developing integrity, character and social understanding needed for future leadership.

Neither the usual college textbooks nor standard lectures will be much in evidence. Teaching methods will be based on those being developed in the Carnegie plan of professional education. Classes will be seminar-type and will be held in existing Carnegie buildings until the new building is erected.

The planning committee includes President Robert E. Doherty, and Robert F. Mehl, head of the metallurgical engineering department of the institute.

Reinforced Concrete

The Council on Research of Reinforced Concrete held its first meeting in Chicago Sept. 12. It is under the sponsorship of the Engineering Foundation to plan and carry out research projects in reinforced concrete. A report on a project now being conducted at the University of Illinois was received. This program involves testing 120 reinforced concrete columns under varying eccentricities of load. Strains will be measured in the concrete and steel and the analysis will attempt to correlate the results with existing proposed ultimate theories for concrete. The chairman of the Council is R. F. Blanks, of the Bureau of Reclamation.

Ecole des Beaux-Arts

An important step opening the way for graduates of American schools of architecture to be admitted to the renowned French school of Fine arts, the Ecole des Beaux-Arts, has been announced by the American Institute of Architects.

Graduates of American schools of architecture have been admitted to the Beaux-Arts only after a qualification procedure. Under the new arrangement with the French school worked out by Julian Clarence Levi, New York, chairman of the Committee on International Relations of the A.I.A., selected graduates of American schools will be admitted by Beaux-Arts without examination.

Those selected will have the benefit of postgraduate study at the 300-year-old Paris institution at the expense of the French government, since the school is supported by it and there are no tuition fees.

TRAFFIC ENGINEERS—The first two fellowships in traffic engineering have been awarded by the International Road Federation, Washington, D. C., to Engineers Ricardo Gandolfo S. from Lima, Peru, right, and Rafael Cal t Mayor from Mexico. They will attend the course at the Bureau of Highway Traffic at Yale University. Fellowships are offered by IRF, in cooperation with its affiliated good roads associations in Latin America, to help promote sound highway planning.

The Ecole des Beaux-Arts will accept up to ten graduates of schools which are members of the Association of Collegiate Schools of Architecture. Selection will be made by a committee of the A.I.A. on the basis of applicants' scholastic records, architectural designs and other criteria. Members of the committee are Leopold Arnaud, chairman, Dean of the School of Arts, Columbia University; George S. Koyl, Dean of the School of Fine Arts, University of Pennsylvania; Charles Butler, New York, practicing architect, and Chairman Julian Clarence Levi.

Metals Analysis

The Geiger counter, famed for its ability to detect uranium and other radio-active materials, has been adapted by scientists of the research laboratory, United States Steel Corporation of Delaware, to the development of a quick and accurate method of analyzing steel samples. After careful calibration for specific problems, many of which are yet to be solved, Geiger counter analysis is expected to be much faster than the direct-reading spectograph, which itself is a recent development in metallurgical analysis. In the laboratory studies, the counter is used in conjunction with special spectrographic equipment and has achieved a measure of success in revealing quickly the kind and quantity of alloying elements in steel.

Endowed Research

University of Wisconsin regents have accepted the bequest of $5,000 and valuable technical volumes willed by the late Daniel W. Mead, long-time member of the college of engineering faculty. Interest on the $5,000 will be used for research work by the hydraulic department of the College of Engineering, "or such other purposes as may be determined by the college," according to the terms of Dr. Mead's will. The technical books will be added to the Engineering library. Dr. Mead, an outstanding civil engineer, was a member of the University faculty from 1904 to 1932. Many engineering projects throughout the country bear the marks of his professional skill. Hoover Dam's Lake Mead was named in his honor. He was consulting engineer for the $30,000,000 Miami conservancy district project in Ohio. In 1914 he was a member of the Red Cross commission sent to China to study flood protection on the Huai River.

This Million-Dollar Investment Pays Ten Per Cent

The city of Waverly, Iowa, has operated its own electric power plant since 1904. Starting with an investment of $13,400, the operation has been so successful that further investments, now totaling nearly a million dollars, have been made through the years. The record at Waverly offers many suggestions to men in charge of power.

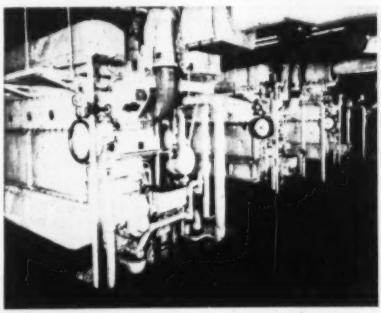
Up to 1937, the power generating equipment at the Waverly plant consisted of three hydro-electric units with a total capacity of less than 500 kw. In 1938, when the demand for more power increased, the city engineers ordered two Worthington EE-5 Diesel-electric generating units of 430 kw capacity each, and one Worthington D-5 Diesel-electric unit of 250 kw capacity. In 1942 a fourth Worthington unit of 720 kw capacity was added. The station's firm capacity at this time was 1310 kw with a maximum possible output of 2045 kw. Local power requirements averaged 1800 kw, therefore this additional capacity was needed as soon as possible.

More Power Needed and No Room for Expansion

The lack of floor space in the station caused considerable concern to the city's engineers, because the installation of an additional Diesel-electric generator would necessitate building an extension, and such an addition was found impossible since the plant was hemmed in by buildings on two sides and a street and river on the others.

So it was decided to supercharge three of the Diesels to meet mounting loads, and this proved to be economical and efficient. Worthington not only supercharged the engines, but advised that design conditions permitted a speed of 360 rpm instead of the 327 rpm speed at which the Diesels had been running. This supercharging plus the conversion increased the capacity by 1020 kw, and brought the engines' fuel economy to 1.0 kw per gallon of fuel oil consumed.

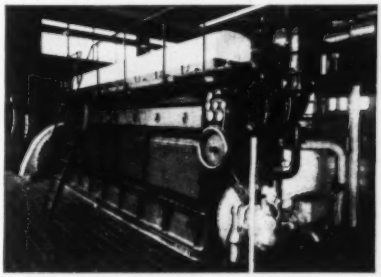
The cost of materials and equipment to convert the engines to supercharged units was about the same as that of a new 1020 kw generator and engine. But a saving estimated at $30,000 was realized by not having the expenditure for building alterations and switchgear units.



One Worthington supercharged SEH-8 and two supercharged SEH-5 Diesel engines at Municipal Power Plant, Waverly, Iowa

New Plant Built to Provide More Power

Still, the power requirement grew, and to insure a safe margin of spare capacity (and also to alleviate flood danger at the old plant), a new plant has recently been completed on high land in the outskirts of town. One Worthington SEH-8 supercharged Diesel-generator with a 1240 kw capacity was installed early this year, and now that this generator is on the line, the largest of the older sets will be moved in with it. Plans call for the balance of the old power plant to remain intact for stand-by and peak load service.



A Worthington SEH-8 Diesel engine shown in the new Municipal Power Plant at Waverly, Iowa

New Equipment Earns Money for Waverly

The supercharged engines have increased the average fuel economy by producing more kilowatt hours per gallon of fuel. Comparison of the fuel cost for the fiscal year ending 1944 (when all engines were non-supercharged) with that of 1949 (after supercharging), with running capacity factors almost identical, shows that for the year ending 1949, 11.1% more kw hours were produced per gallon of fuel oil than for 1944.

The customer is particularly pleased with the results of the Worthington SEH-8 engines. The average fuel production rates, as given in the city's 1948-49 annual report, are as follows:

Engine No. 4 (converted SEH-8) generated 3,088,000 kw hrs and produced 14.48 kw hrs per gallon at an engine running capacity factor of 59.2%.

Engine No. 5 (latest SEH-8) generated 105,600 kw hrs and produced 14.42 kw hrs per gallon at an engine running capacity factor of 45.6%.

The value of Waverly's power plants, generating equipment and distribution system is $942,666.00. On this investment of nearly a million dollars, profits during the fiscal year ending March 1949, after operating expenses, insurance and sales tax were deducted, amounted to $92,522.77—a dividend of 10%.

NEWS

FROM THE PUBLIC WORKS FRONT

REPORTED BY THE DEVELOPMENT ENGINEERS, FIELD SERVICE REPRESENTATIVES AND CUSTOMERS OF WORTHINGTON

Unique Water Circulating System Foils The Flood

A 70,000 square foot, two-pass surface condenser, with auxiliaries, now under construction for the third unit of The Ohio Public Service Company's R. E. Burger Steam-Electric Station uses the patented circulating water system pioneered jointly by Worthington and the customer's consulting engineer, Mr. George W. Saathoff.

Located on the Ohio River at Dilles Bottom, Ohio, this plant is on ground well above a flood stage which has reached as high as 57 feet above extreme low water level. The new condenser, when completed, will serve a 90,000 kw nominally rated turbine generator. Units #1 and #2, now in operation, are 60,000 kw nominally rated, and each is served by a 46,000 square foot Worthington condenser.

This unique water system permits all major equipment, except circulating pumps, to be located above flood stage with but slight increases in pumping power requirements compared with a low-level plant, and eliminates expensive excavation and substructure costs which would be necessary to locate the condensers in deep pits to maintain normal pumping heads and at the same time keep the turbine generator above flood stage. The long, large exhaust connection piece between turbine and condenser is also eliminated. All circulating and condensate pumps are vertical, with motors above high water, and all pumps are designed to operate completely submerged, if necessary.

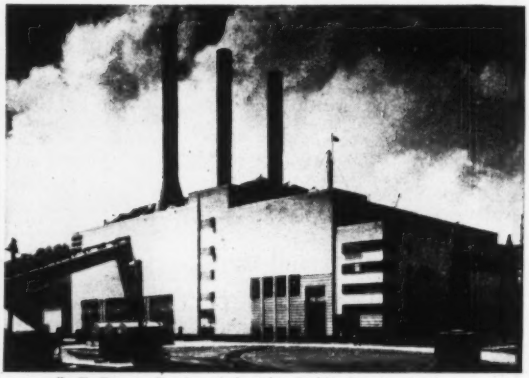
Two full capacity circulating pumps, illustrated in the diagram, are used in series. The primary pump is a Worthington motor-driven HIFLO, submerged below extreme low water. The secondary or booster pump is a Worthington single suction volute MIXFLO mounted directly upon, and driven by, an hydraulic turbine.

Advantage is taken of maximum syphon effect from the condenser discharge drop leg which enters a sealing or control well, from which all of the circulating water passes through the hydraulic turbine. In this way, 75-80% of the static head from sealing well to river level is recovered for useful work. This reduces the burden on the primary pump, with considerable saving in overall pumping horsepower.

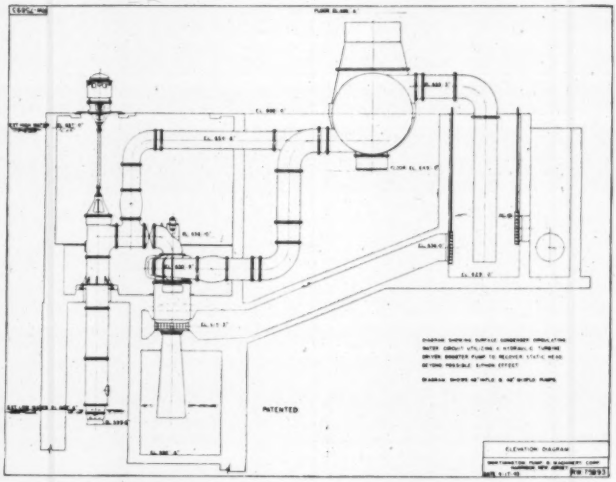
The HIFLO pump, with its high starting head characteristic, is able to deliver enough water to the condenser for starting purposes The by-pass, shown in the diagram, was omitted for Units #2 and #3, because the HIFLO can pump directly through the MIXFLO. When there is enough water in the control well, the hydraulic turbine is started and the HIFLO and MIXFLO automatically operate in series at full capacity.

The booster pump functions until the river rises to such level as to render the hydraulic turbine ineffective, from which point the motor-driven HIFLO operates alone, producing full capacity under reduced head. Unit #3 will include two half-capacity primary HIFLO pumps which will discharge through a single booster MIXFLO pump, thereby permitting operation of only one primary pump when low water temperatures prevail.

The system is ideal for installations where there is considerable fluctuation in water level and where it is desirable to locate the plant at considerable elevation above the source of circulating water supply for reasons of lower construction cost, accessibility or geographical location.

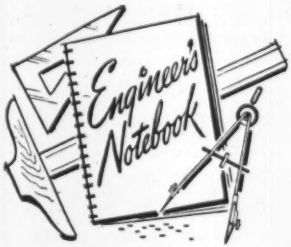


R. E. Burger Station of the Ohio Public Service Company, Dilles Bottom, Ohio



Worthington Pump and Machinery Corporation
Harrison, N. J.

NEWS



Worthington Treats Boilers To Clear Drinks

New Water Treating Plant Protects Evaporator... Reduced Blowdown

A new water treating plant was recently installed at the O. H. Hutchings Power Generating Station of Dayton Power and Light Company in Miamisburg, Ohio, to protect the evaporator from scale and corrosion, and reduce blowdown.

Filters Are Backwashed with Clear, Chemically Inert Water

Treatment is by the hot-process lime-soda system which has a normal rated capacity of 6250 gph of treated water deaerated to 0.005 cc/leter at 3 to 5 lbs operating pressure. A 1040 gallon deaerator water storage section and Worthington's exclusive filter wash water reclamation compartment have been made an integral part of the softener tank. This enables the filters to be backwashed with clear, chemically inert water.

Exclusive Hydraulic Agitating System Keeps an Even Mix

Chemical is fed by proportionate decantation from a single chemical supply tank equipped with Worthington's exclusive hydraulic agitating system. This system is designed to maintain a uniform mix of plus or minus 1% in concentrations up to 15% by weight of chemicals to water.

After automatic dilution with low-temperature condensate, the proportioned chemical is pumped to chemical spray lances in the softener by a Worthite centrifugal pump. This delivery pump and its spare have to operate against a 90 ft. total discharge head, because the softener tank was installed quite a distance above the chemical feeder and filters.

Treated and deaerated water is filtered through a battery of three pressure filters, having 5' 6" diameters and 5' 0" vertical straight sides. Those filters are equipped with manifold-lateral underdrain systems and Worthington directional-flow cast-iron distribution nozzles and Carbworth beds.

Proportions Sludge Blowdown to Sludge Formation

The backwash line leading from wash water compartment to wash water pump suction is equipped with a venturi rate-of-flow indicator and direct reading mercury gauge. Its return line which runs from the filter to the wash water reclamation compartment is equipped with a Worthington valve-type sight glass. Chemical proportionment is paced by an orifice-type indicating and recording meter through an adjustable time-interval relay and special decanting gear. Sludge blowdown is proportioned to sludge formation by the same orifice which acts through an indicating meter, adjustable time-interval relay and electrical motivation of an hydraulic all-iron blowoff valve.

Chemical Agitation and Feed Stop and Go Automatically

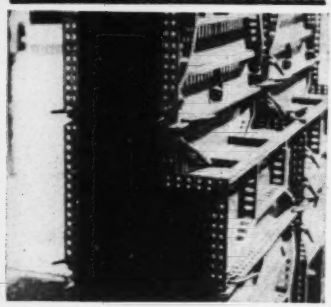
Operating character of the boiler plant is such that make-up requirements to the evaporator may be intermittent. Therefore, the treating plant is not only designed for continuous operation, but is also equipped with necessary interlocking devices so that chemical agitation and feed are automatically stopped with the discontinuance of treated water and automatically returned to continuous operation upon the resumption of treated water.

Raw Water is Tamed

Raw well water has a total hardness of 300 ppm and a carbonate alkalinity of 320 ppm. Previous experience with water of this character indicated that a temperature rise of more than 20° F would cause scale deposit. Therefore, for protection against scale deposit in the softener tubular vent condenser and possibly on the heater spray valves, the vapor flow from the top of the softener to the vent condenser is automatically controlled by an air-operated valve. This valve is piloted by a thermostatic mechanism, the element of which is mounted in the effluent water box of the vent condenser. This way, temperature of raw water passing through the tubes of the vent condenser is limited to 20° F, regardless of the load on the softener. 9.27

Worthington Pump and Machinery Corporation
Harrison, N. J.

Another Job Showing the
ADAPTABILITY of
ECONOMY STEEL FORMS



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OBITUARY

Emil Diebitsch, 83, civil engineer president of a building and contracting firm and one-time member of the Peary Expedition to Greenland, died Sept. 22 in Nutley, N. J. Graduated from Lehigh University as a civil engineer in 1889, Diebitsch was vice-president of the John Pierce Engineering & Contracting Co., New York, for many years. He later founded Emil Diebitsch, Inc.

Henry M. Milburn, 69, testing engineer with the Bureau of Public Roads for the last 31 years, died Sept. 26 at Kensington, Md. A civil engineering graduate of the University of Michigan, Mr. Milburn first went to Washington in 1908 to work in road testing laboratories of the District of Columbia, and later did the same type of work for Omaha, Neb. He returned to Washington in 1918 to join PRA.

Harry L. Bosley, 54, highway engineer with the Public Roads Administration for the last 28 years, died at Bethesda, Md., on Aug. 30. He was a graduate of the University of Maryland.

Cary J. Smith, 68, retired resident engineer of the Tennessee Highway Department, died Sept. 27 in Knoxville, Tenn. He had been with the highway department for 28 years.

Heber K. Burton, 78, former superintendent of the Salt Lake City, Utah, water department, died Sept. 21. His municipal career began in 1912. He served with the water department in many capacities from 1919 until retirement in June, 1946. He then was retained by Salt Lake City as a consulting engineer.

Harry St. George Tucker Carmichal, 69, engineer, and vice-president of the Kentucky Rock Asphalt Co., of which he was formerly general superintendent, died at Bowling Green, Ky., Sept. 28. In February, 1925, he led the group of workers who sunk a shaft in a vain effort to reach Floyd Collins, a cave guide and explorer, who was trapped in Sand Cave, near Horse Cave, Ky.

Charles Malcolm, 69, a graduate in civil engineering, University of Illinois, 1902, former instructor in civil engineering at that institution, and author of several civil engineering text books still in use, died Sept. 29 in Monmouth, Ill.

Maxfield L. Boswell, died Sept. 22 at Cheticamp, N. S. A civil engineering graduate of McGill University, Montreal, he had been assistant engineer on dock construction at Halifax, buildings superintendent of the Halifax school board, an officer in the Canadian Engineers, in the first world war overseas, a research engineer on tank construction at Montreal in the second world war, and since then with Robin, Jones & Whitman, Halifax.

Charles R. McKinney, 63, assistant engineer for the Pennsylvania Turnpike Commission, died at Dravosburg, Pa., on Sept. 23.

Arthur L. Enger, a structural engineer with the California State Division of Architecture for 12 years, died Sept. 5 in Sacramento. He was an engineering graduate of the University of Illinois where his brother, Melvin L. Enger, was former dean of engineering. Before the war, Mr. Enger was assigned to the Los Angeles office of the Division of Architecture; and during the war, when that office was closed, he was with Ellison & King, structural engineering firm. He rejoined the division and was sent to Sacramento where he rose to principal engineer, but ill health forced his retirement just a month before his death.

Robert H. Emmerson, 69, died Sept. 11, at St. John, N. B. He had been on the engineering staff of the Canadian National Railways for 45 years, including service as division, assistant and right of way engineer, at Moncton, N. B.

Charles Roach, 61, a former state highway superintendent for Lawrence County, died Sept. 28 in Ironton, Ohio.

Calvin Anderson Ridge, 67, superintendent of the municipal water works at Winston-Salem, N. C., for the last 31 years, died October 3.

Cecil C. Zethraeus, consulting engineer, Ft. Worth, Tex., died there Sept. 28. He was graduated in civil engineering at Tulane University and moved to Ft. Worth in 1926.

Joseph G. Farlow, 67, civil engineer with the North Carolina Highway Department for 26 years, died Oct. 1 at Durham. Before joining the department he was in highway work at Salisbury, Md.

Col. Robert J. Desmond, 57, who served in both the civilian and military branches of the Corps of Engineers, U. S. Army, for the last 35

years, died Oct. 3 at Jersey City, N. J. His recent duties had included administration work in the maintenance and improvement of New York harbor. A second lieutenant of the Corps of Engineers in the first world war, he returned to civilian service after war, including N. Y. State Barge canal work. In the last war he served in technical operations and administrative details rising from captain to colonel.

Walter G. Distler, 58, vice-president of the George A. Fuller Co., died Oct 6 in Washington, D. C. Mr. Distler supervised the erection of some of Washington's largest government buildings, including the Supreme Court, Archives, Justice and Interior Department buildings, Tomb of the Unknown Soldier, the Arlington Amphitheater, the Lincoln Memorial and Constitution Hall. A 1912 civil engineering graduate of Cornell University, he also directed construction there as well. He joined the Fuller Company in 1914. During World War I he served as a major in the Army Engineers Corps and was engaged in construction work. In 1922 he became vice-president of the Fuller Company in charge of its Washington office. Mr. Distler also directed construction of the state capitols at Baton Rouge, La., and Charleston, W. Va. At the time of his death the company was engaged in constructing the museum building of the Daughters of the American Revolution and the Washington Cathedral.

John C. Rodder, 65, Oakland, Calif., highway and mining engineer died Sept. 3 in Oroville, Calif. In the 1920's, he interrupted his long mining career to act as engineer for the Nevada State Highway Department and was division engineer at Tonopah, Nev., from 1928 to 1935. During World War II, he was with the U. S. Army Corps of Engineers.

Charles H. Hurley, retired civil engineer of Albany, N. Y., died Oct. 2. He was a graduate of Rensselaer Polytechnic Institute. A field engineer at Sacandaga Reservoir 15 years, he later was an engineer for the State Conservation Department.

George Franklin Randall, 83, chief engineer at Bolling Field, near Washington, D. C., until retirement in 1932, died Oct. 4 in Takoma Park, Md. Before his five years service at Bolling, Mr. Randall had been chief engineer at Walter Reed Hospital for 17 years. He had spent 40 years in government service.

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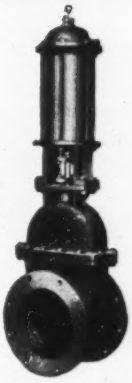

FIG. 611 FTR. Bronze cylinder with Tie-Rods, standard up to 12" diameter.

FIG. 611 F. Cast-Iron, Bronze-Lined Cylinders, standard over 12" diameter.

KENNEDY Hydraulic or Cylinder-Control Gate Valves are available for steam, air, oil or cold water service.

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Pressure must be maintained in the cylinder on Hydraulic-Control Gate Valves to hold the closed position, unless valve stem is horizontal or hanging vertically from the disc.

Use the check list below and write for further details and prices of KENNEDY Hydraulic-Control Valves to meet your particular requirements.

CHECK LIST FOR INQUIRIES AND ORDERS

- ☐ Size of valve and whether bronze or cast iron bronze-lined cylinder.
- ☐ Working or test pressure and actual unbalanced pressure on discs.
- ☐ Type connection; flanged, bell ends, or special.
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- ☐ Dependable pressure available for cylinder operation and whether cold water, air or oil, etc.
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MEN AND JOBS

Maurice Barron, structural engineer, formerly with Clarke, Rapuano & Holleran, and Nicholas Farkas have former a partnership, Farkas and Barron, consulting engineers, with offices at 150 Broadway, New York City, as successors to Sigman & Farkas. Mr. Barron is a graduate of Cooper Union Institute of Technology and of Cornell University. While with Clarke, Rapuano & Holleran he was chief engineer, structural division, and developed several unusual designs of rigid frame and arch bridges including a variable skew (curved-in-plan) barrel rigid frame viaduct. He is co-author with Arthur G. Hayden of "The Rigid Frame Bridge," the third edition of which is soon to be issued from the press.

On Aug. 23 the first concrete was placed in the construction of Dam "B" which the Corps of Engineers is building on the Neches River, near Jasper, Tex. Pictured witnessing the event are, left to right, Lt. Col. Charles D. McDaniel, acting district engineer of the Galveston District, Corps of Engineers; Kenneth Smith, chief of the Galveston District construction division; W. C. Noonan, contractor; Fred Johnson, resident engineer for the Corps of Engineers; C. W. Williams and S. P. Reynolds, contractors. The three contractors represent the Reynolds & Williams and Noonan Construction Co., holder of a $2,821,154 contract for completion of the embankment, construction of the spillway and other works. Construction is under the direction of Lt. Col. Ellsworth I. Davis, district engineer of the Galveston District.

Sponsored by the Greek government and the Bureau of Public Roads, four Greek highway engineers are in West Virginia to study highway construction and maintenance methods of the State Road Commission. Pictured above inspecting construction plans in the state offices are, left to right, George Papazotos, district engineer, Sparta; Voule Scopeteas, district engineer, Athens; Anast Anastasiades, Thessaloniki; J. C. Cobb, district engineer, Bureau of Public Roads, Charleston; Charles Meruw, district engineer, Athens, and George W. McAlpin, state construction engineer, State Road Commission, Charleston. Similarity of the terrain of Greece and West Virginia prompted the visiting engineers to study West Virginia roads. They are all acquainted with former West Virginia road commissioner E. L. Worthington, now chief engineer of roads for the reconstruction section of the American Aid Mission to Greece.

Maj. Robert C. Marshall has been assigned to replace Maj. Albert J Ryan as assistant engineer of the Army Engineers at Philadelphia, Pa., according to an announcement by Col. F. F. Frech, commanding officer. Major Ryan is being transferred to the Army Command and General Staff School at Fort Leavenworth, Kan.

Harold D. Hauf, chairman of the department of architecture and professor of architectural engineering at Yale University, has been appointed editor of "Architectural Record."

Maj. Malcolm Turner of the Royal Canadian Engineers, has been transferred from Halifax, N. S., to Fredericton, N. B., as area engineering officer. He is a graduate in engineering of Queen's University, Kingston, Ont. He succeeds **Maj. Norman Fraser,** who has been named assistant director of engineering of the RCE at Ottawa, Ont.

Freeman H. Cushman, assistant engineer in the stores department of the California state division of highways, Sacramento, has retired after 27 years of service with the state.

Arnold Eaton has been made city engineer of Red Bluff, Calif., filling a position left vacant since 1942 when O. R. Smith resigned.

W. W. Downie, formerly chief engineer of the Halifax, N. S., School Commission has gone with Downie-

Charlie Scheidecker and Al Nelson express satisfaction at progress on repairs to the Holland Tunnel, New York City-New Jersey, which was badly damaged by fire in May (ENR, May 19, page 11) as the result of the explosion of a truck loaded with chemicals. Al is superintendent and Charlie general superintendent for James Mitchell Inc. of Jersey City, N. J., general contractor on the repairs, which are being done for the Port of New York Authority.

Baker and Ahern, architects and engineers, Halifax.

James D. Murphy, who until recently was employed by Darby, Bogner & Associates, Milwaukee, Wis., architectural and engineering firm, has been named to the technical staff of the Chicago Land Clearance Commission and will be project planner.

Carl S. Burbridge, a civil engineer from Hampton, Va., is first town manager of Princess Anne, Md.

R. L. Marlow, sanitary engineer for Tuscarawas County at New Philadelphia, Ohio, has resigned to become milk sanitation engineer for Zanesville.

G. P. Bozel, Virginia highway resident engineer for Bedford County, has been transferred to Louisa Court House to take charge of road matters in Louisa and Fluvanna counties, Virginia.

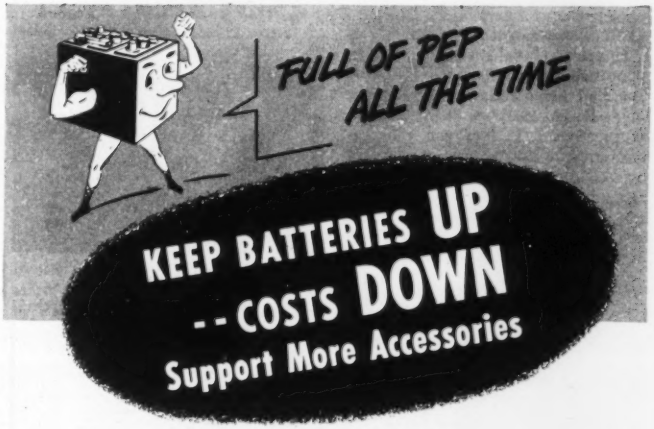
John B. Funk, Maryland state engineer, has been named temporary chairman of the Maryland Planning Commission.

Kenneth S. Watson, Charleston, W. Va., has been appointed assistant director of the Ohio River Valley Water Sanitation Commission. He has been administrative head and executive secretary of the West Virginia water commission since 1946. He has also served as one of the three representatives from West Virginia on the board of the Ohio River Valley Water Sanitation Commission. He is a graduate of West Virginia University with three degrees in engineering science and chemical engineering. During the war he served as a major in the U. S. Corps of Engineers.

Lee M. Toner has become director of the Federal Housing Administration's northern Ohio district, with headquarters in Cleveland, succeeding J. L. Wadsworth, retired.

Ivan Earhart, who held the same post from 1936 to 1940, has been appointed Preble County engineer at Eaton, Ohio, to succeed the late Bayard G. Sheppard.

Harold M. Johnson, veteran of 26 years with the Hillsdale County, Mich., road commission, is now general superintendent, succeeding Fred F. Rogers, highway engineer in Hillsdale County for 25 years, who resigned to take a similar post in Livingston County.



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J. I. Thomas, with the Army Corps of Engineers for 18 years, has been appointed project engineer for the Pine Flat Dam and reservoir on the Kings River, east of Fresno, Calif. He succeeds **J. L. Newman** who has transferred to Sacramento as chief of the construction branch. An engineering graduate of the University of Colorado, Mr. Thomas has assisted in the design and construction of several large multi-purpose concrete dams.

Three district engineers of the Pennsylvania Highway Department have exchanged areas. **C. R. Forbes** of District 8, Harrisburg, takes charge of District 9, Hollidaysburg; **George E. Nagele** of District 9, Hollidaysburg, takes over District 2 at Clearfield; and **N. A. Staples** of District 2 at Clearfield will succeed Mr. Forbes in charge of District 8, at Harrisburg.

James A. Irvine, district engineer of the Canadian Pacific Railway at Montreal, has retired after 48 years service.

Charles P. Morgan has resigned as superintendent of the department of building and safety, Long Beach, Calif., to join with **Wm. J. Bobisch** in a partnership of consulting engineers. Bobisch is a professor of civil engineering at the California Institute of Technology. Morgan has been associated with the Long Beach city government for four years, starting as an engineer in the city engineer's office, and later as chief building inspector.

New officer-in-charge of the San Antonio, Tex., sub-office of the Corps of Engineers is Lt. Col. W. P. Jones, Jr., who has succeeded Lt. Col. C. D. McDaniel, now executive officer at Galveston, Tex. Colonel Jones has a master's degree in civil engineering from the University of Illinois and was commissioned in the regular Army in 1937. He saw service in North Africa, Sicily, Italy, the Philippines, and Korea.

Joseph E. Quinn, Jr., left, newly elected chairman of The Ohio River Valley Water Sanitation Commission and Engineer of The Hulman Co., Terre Haute, Ind., accompanied by C. W. Klassen, right, a commissioner of the ORUWSC and state sanitary engineer of Illinois, with their host, Col. Francis Falkner, in charge of The Pittsburgh District, U. S. Corps of Engineers complete an inspection of river pollution conditions.

John F. Hagemann, former office engineer for the Oregon state highway department, has been promoted to field engineer to serve as liaison between the highway department and cities and counties. Except for a four year period of military service, he has been with the department since 1936.

Max J. Bartell, San Francisco's chief hydraulic engineer, has retired after 41 years with the city. He made the hydrographic studies and preliminary plans for the Hetch Hetchy Project, which provides San Francisco's water supply.

Frank H. Reynolds is city engineer of Sacramento, Calif.

Leslie Maxwell, former assistant New Castle County engineer has been appointed maintenance engineer for that county for the Delaware State Highway Department.

Everette N. Pearsall of Burgaw, N. C., who has been with the North Carolina Highway Department for 21 years, 16 of which was in road construction and maintenance in eastern North Carolina, has been named highway engineer for Brunswick County, N. C.

Charles Barner, assistant Delaware County sanitarian at Delaware Ohio, has been appointed a special deputy sheriff following a recommendation that the post be given greater authority in the enforcement of county sanitation.

Hendley Blackmon, managing editor of Electrical World since 1947, has been appointed assistant manager of engineering association activities for Westinghouse Electric Corp., East Pittsburgh, Pa. He will work with Westinghouse engineers on papers to be presented before engineering associations. Following his graduation from Georgia School of Technology in 1925 with a B.S. degree, Mr. Blackmon spent a year in the Westinghouse student course and went to the general engineering department in 1928. In 1932 he was named technical editor of the company's technical press bureau. He was appointed manager in 1938, a position he held until 1945 when he resigned to join McGraw-Hill Publishing Co as electrical editor of Product Engineering. In 1946 he was made managing editor of Product Engineering.

Members of the new State Highway Planning Commission of Pennsylvania are: **Ralph Kelly** and **Arthur C. Kaufman,** Philadelphia; **State Senator James S. Berger,** Coudersport; **Edgar J. Kauffmann** and **Max Donn Howell,** Pittsburgh; **George R. Lamade,** Williamsport; **Charles S. Tippetts,** Mercersburg; **Judge J. Paul Rupp,** Steelton; **Don Markle,** Jeddo; **Walter H. Krebs,** Johnstown, and **William H. Worrilow,** Lebanon.

Col. Benjamin C. Fowlkes, Jr., has taken up his new duties as district engineer of the Vicksburg, Miss., district Corps of Engineers. He succeeds Col. R. G. Lovett, former district engineer, now assistant chief of engineers for supply and procurement. Colonel Fowlkes received his commission as 2d lieutenant, Corps of Engineers, at West Point, 1925, and went to Cornell where he got his degree of civil engineer. He has done a great deal of construction, and commanded several engineer units in the war.

UNIT PRICES BID BY CONTRACTORS

Steel and concrete bridge over Quinebaug River, Conn.

PROJECT: a 300 ft, twin span plate girder and reinforced concrete bridge and bituminous macadam approaches, 1,612.59 ft. overall, 24 ft wide, 10½-in. in depth; in towns of Canterbury and Plainfield, on Route 14.

OWNER: State of Connecticut.

CONDITIONS: minimum wages, skilled $2 to $2.50; intermediate $1.25 to $1.85; unskilled $1.275 to $1.375. Contractor can eliminate 3 percent tax on transportation and 2 percent Connecticut sales tax by consigning shipments to State of Connecticut.

BIDS: Opened Sept. 19, 1949, high bid only 7 percent above low.

1. Campanella-Cardi Constr. Co., Hillsgrove, R. I. contract.... $209,967
2. Charter Oak Constr. Co., Hartford, Conn..... $220,568
3. N. Benvenuti & Sons, New London, Conn..... $224,124

Items	Quantity	Unit Prices 1	2	3
Clear. and grub. ls	.....	$6,210.00	$5,000.00	$2,000.00
Excav., earth cy	4,232	0.50	.50	.75
Excav., rock cy	223	3.00	2.00	.75
Excav., bridge cy	650	7.00	15.00	14.00
Remov. exist. mas'y cy	480	5.00	6.00	5.00
Excav., trench 0'–6' deep cy	260	1.50	1.50	1.50
0'–10' deep cy	90	2.00	3.00	3.00
Excav., ditch cy	220	2.00	1.50	1.00
Borrow cy	19,641	0.40	.45	.50
Pipe 15" reinf. concr. lf	280	2.50	2.50	2.50
Pipe 18" reinf. concr. lf	64	3.00	3.25	3.00
Pipe 15" asph. ctd. CM lf	76	2.80	4.00	4.00
Pipe 6" perf. asph. ctd. CM lf	168	1.50	1.20	1.25
Catch basin, type C ea	4	175.00	200.00	250.00
Drop inlet, type C ea	2	175.00	200.00	250.00
Test piles ea	3	250.00	50.00	300.00
Furn. equip. for driv. test piles ls	.....	300.00	250.00	100.00
Pile load. test ea	3	200.00	250.00	300.00
Furn. steel piles lb	207,500	0.06	.06	.06
Driv. steel piles lf	3,830	1.00	.75	1.50
Splic. steel piles ea	6	40.00	50.00	50.00
Portland cement Bbl	1,340	4.50	4.25	4.25
Natural cement Bbl	238	4.50	4.25	5.00
Cl. A concr cy	922	30.00	31.50	36.00
½" Premould. bit. joint filler for bridges. s.f.	135	1.00	1.00	.75
Deformed steel bars lb	78,800	0.10	.10	.095
Struct. steel lb	610,000	0.15	.16	.155
Metal flashing lb	172	1.00	2.00	1.50
Dampproofing sy	175	1.00	1.00	1.00
Cr. stone for drains cy	7	8.00	6.00	8.00
Remov. superstruct. ls	.....	4,000.00	1,500.00	3,500.00
Metal bridge rail lf	617	14.00	12.00	14.00
Gravel fill cy	31	5.00	5.00	4.00
Pervious matl cy	470	1.50	2.00	1.50
Subbase cy	1,943	1.00	2.00	1.00
Formation of subgrade sy	4,734	0.10	.15	.15
Rolled gravel base cy	1,052	2.00	2.00	2.00
Cr. stone for bit. mac. pav. ton	790	4.00	4.00	5.00
Rolled bank grav. surf. cy	293	2.00	2.25	2.00
Traf. bnd. grav. surf. cy	50	2.50	2.00	2.00
Bit. matl. for surf. treat. gal	4,157	0.17	.19	.17
Bit. matl. for bit. mac. pav gal	12,609	0.16	.19	.17
Sand cover for bit. surf. treat. sy	7,368	0.05	.10	.10
Concrete curbing lf	67	3.00	3.00	2.50
Paved ditch sy	40	6.00	5.00	4.00
Farm wall fence lf	1,000	2.00	1.50	1.25
Wire fence l.f.	2,000	0.35	.40	.45
Barway ea	6	20.00	30.00	25.00
Wire rope railing l.f.	1,080	0.80	.80	.85
Type B anchorage ea	4	30.00	35.00	35.00
Type C anchorage ea	3	20.00	20.00	25.00
Compensating type anchorage ea	7	25.00	25.00	30.00
Single post ea	17	4.00	5.00	5.00
Riprap ton	50	6.00	8.00	10.00
Concrete marker post ea	2	25.00	35.00	30.00

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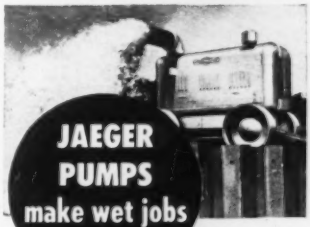

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

WATER SUPPLY

LOW BIDDERS

Tex., Baytown—B. S. Sturman, 204 Winkler Dr. and H. A. Crabb, Southern Standard Bldg., Houston, waterlines from L. S. Campbell, 2004 Washington St., Houston, **$44,151.** CD 10/4.

CONTRACTS AWARDED

Kan., Ottawa—City, L. I. Crater, clk., Sept. 14, alterations and addns. to water works and plant, incl. structural alterations and addn. and alterations high service c. i. suction and discharge line, etc., to Oral M. Stancart, Ottawa, **$35,807.** Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. CD 4/17/46.

Okla., Oklahoma City — City, City Hall, watermains serving S. Pennsylvania, 44, 47 and 48 Sts. in Stanford Add. to Sherman Iron Wks., Co., 18 E. Main St., Zone 2, **$30,446.** Est. $35,000. Bids 9/28, awarded 9/30. M. B. Cunningham, city engr.

Ont., Belmont—Municipality, water system, to J. Laundsbury, 22 Woodward Ave., London, **$75,000.** F. A. Bell, County Bldg., St. Thomas, engr.

Ont., Ottawa—City, City Hall, 48 in. watermains for Slidell St. to Queen St. Pumping Station, to Pressure Pipe Co., Ltd., Sun Life Bldg., Montreal, Que., Approx. **$164,840.** Bids 9/20, awarded 10/4. CD 8/31.

Sask., Unity — Municipality, Unity, water system, to E. Erickson, Meadow Lake, **$50,000.** Bids 7/6. CD 6/28.

SEWERS, WASTE DISPOSAL

BIDS ASKED

October 25

New York—President Queens Boro, 120-55 Queens Blvd., Kew Gardens, Zone 15, storm sewer and appurtenances, 141 Ave., Carson St., Springfield Blvd., sanitary sewers and appurtenances, 141 Ave., Carson St., Springfield Blvd.; combined trunk sewer, Springfield Blvd.; combined sewer and appurtenances, Springfield Blvd., 131 Ave., 230 St. CD 7/16, under Kew Gardens.

October 31

Ind., West Lafayette—Bd. P. Wks., C. H. Miners, secy., City Hall, sanitary and storm sewer, $150,000. C. M. Draper, city engr. CD 5/27.

End of October

Md., Baltimore — City, City Hall, sewer imprvs., Contrs. 381 and 382 S. incl. excavation, concrete work, 30- and 36- in. c. i. pipe, Chestnut and 33 Sts., to Broadway and Hartford Sts., to E. Chase St., Whitman, Requardt & Assoc., 1304 St. Paul St., engrs.

LOW BIDDERS

●**Neb., Omaha**—City, City Hall, 18 and Farnam Sts., Oct. 4, Benson, sewer, from Santuccia Constr. Co., Skokie, Ill., **$1,062,355.** Est. $1,200,000. CD 9/13.

Tex., Baytown—B. S. Sturman, 204 Winkler Dr. and H. A. Crabb, Southern Standard Bldg., Houston, sanitary and storm sewers from L. S. Campbell, 2004 Washington St., Houston, **$66,678.** CD 10/4.

CONTRACTS AWARDED

Sask., Unity—Municipality, Unity, sewerage system, to P. Olynyk, North Battleford, **$65,000.** Bids 7/6. CD 6/28.

BRIDGES

LOW BIDDERS

North Dakota—State Hy. Dpt., Bismarck, Sept. 30, structural, etc., county road near Mandan, FASP No. S-474 (5) and structural, etc., 0.265 mi. State Hy. No. 6, in Mandan, FAP Proj. No. F-251 (12), both Morton, from The Milton Rue Co., Bismarck, **$51,735** and **$92,325** respectively. CD 9/15.

STREETS AND ROADS

BIDS ASKED

October 27

Tex., Lubbock—City, Lubbock, street imprvs., incl. 86,000 lin. ft concrete curb and gutters; 156,259 sq. yds. asph. paving, etc. $325,000. Plans deposit $25. Koch & Fowler, 713 Great Natl. Life Bldg., Dallas, consult. engrs., G. K. Harris, city engr. CD 4/28.

LOW BIDDERS

†**Colorado**—Bureau of Public Roads, General Services Admin., 254 New Customhouse, Denver, Oct. 5, imprv. 7.354 mi. Bethoud Pass, Colo. Forest Proj. 32-B4, Clear Creek Co. and imprv. 1.856 mi. Cedaredge-Mesa, Colo. Proj. 13B, Mesa Co., from Brown Constr. Co., 1530 E. Abriendo Ave., Pueblo, **$590,436** and **$161,314** respectively. CD 9/29.

North Dakota—State Hy. Dpt., Bismarck, Sept. 30, b. conc. surf., etc. 8.364 mi. State Hy. No. 5, Cavalier to Hamilton, FAP Proj. No. F-366 (6), Pembina Co. from Megarry Bros., St. Cloud, Minn., **$175,300.** CD 9/15.

Tex., Baytown—B. S. Sturman, 204 Winkler Dr. and H. A. Crabb, Southern Standard Bldg., Houston, street constr. and asph. paving, from L. S. Campbell, 2005 Washington St., Houston, **$84,400.** CD 10/4.

CONTRACTS AWARDED

Nebraska—State Dpt. Roads & Irrigation, Lincoln, c. conc. 0.8 mi. paved road, relacing gravel with pavement, FA-S-286, Douglas Co., to Missouri Valley Constr. Co., Omaha Natl. Bank Bldg., Omaha, **$51,871.** CD 9/20.

North Dakota—State Hy. Dpt., Bismarck, gravel, etc. 9.293 mi. State Hy. No. 21, FAP Proj. No. F-37 (5), Hettinger Co. to Archie Campbell, Warwick, **$91,958***** gravel, etc. 11.275 mi. State Hy. No. 1 from Oakes north and south, FAP Proj. No. F-211 (4), Rickey Co., and gravel, etc. 10.789 mi. State Hy. No. 13 from Wishek to Lehr, FASP No. FAGS-254 (9) and S-254 (8), McIntosh Co. to Schultz & Lindsay Constr. Co., 621 1st Ave. N., Fargo, **$97,661** and **$136,130** respectively***b. conc. surf. etc. 14.872 mi. State Hy. No. 46, east of Inderlin, FAP Proj. No. F-370 (16), Cass, Ransom and Richland Counties to Megarry Bros., St. Cloud, Minn., **$317,317***** b. conc., etc. 15.332 mi. U. S. Hy. No. 83 from Strasburg southeast, FAP Proj. No. F-663 (8), Emmons Co. to Northern Improvement Co., 633. 1st Ave. N. Fargo, **$317,273.** Grand total $960,739. Bids 9/30. CD 9/15.

Alta., Lethbridge—Municipality, Lethbridge, concrete sidewalks, to General Constr. Co., Ltd., Lethbridge, **$100,000.** J. Haimes, city engr.

N. B., Saint John—Municipality, St. John, permanent pavements, to Stephen Constr. Co., Ltd., **$200,000.** W. R. Godfrey, City Hall, dir. of wkrs.

N. S., Liverpool—Municipality, Liverpool, permanent paving, to Arcadia Constr. Co., Ltd., 101 Upper Water, Halifax, **$110,000.**

Que., St. Johns—Municipality, St. Johns, sidewalks, to P. Baielargeon, 264 Champlain St., **$50,000.** E. Gaudette, city engr.

EARTHWORK, WATERWAYS

BIDS ASKED

October 26

New York—Bertram D. Tallamy, supt. Dpt. Pub. Wks., Albany.

Chemung Co.—repairing concrete retaining walls, 0.44 mi. at 2 locations, incl. a wall 0.1 mi. on Route 223, 1½ mi. southeast of its junction with Route 224 and 0.34 mi. on Route 427 at west limit of village of Wellsburg. $18,000.

Saratoga Co.—furnish and install steel lower lock gates at five locks on Waterford flight of the Erie Canal, near Waterford, incl. lowering sills, removing present gates, etc. $257,994.

Suffolk Co.—construct precast concrete block jetties, 564 ft. for beach protection in 4 locations on Jacob Beach on Long Island Sound in town of Riverhead, **$24,235.**

November 15

†**Ky., Newport**—U. S. Eng., 830 W. Broadway, Louisville, Zone 3, flood protection works, Serial No. CIVENG 15-029-50-25. Plans deposit $15.

LOW BIDDERS

●†**Maryland and West Virginia**—U. S. Eng., First and Douglas Sts., N. W., Wash., D. C., Group 2, pressure conduits, sewers, local flood protection proj., Cumberland, Md., and Ridgley, W. Va., Serial No. CIVENG 49-080-50-15, from George & Lynch, Inc., 18 and Broom Sts., Wilmington, Del., **$1,734,703.** CD 9/2.

†**Nebraska**—Bureau Reclamation, Dpt. Interior, Arapahoe, Sept. 30, earthwork, canal lining and structures for Cambridge Canal, Station 676 plus 00 to 1012 plus 52, earthwork and structures for drains and channel changes, Spec. 2775, Missouri River Basin Proj., from Bushman Constr. Co., 5 and Felix Sts., St. Joseph, Mo., **$600,568.** CD 3/30.

CONTRACTS AWARDED

●†**Arizona-California-Nevada**—Bureau Reclamation, Dpt. Interior, Coachella, Calif., earthwork, pipelines, structures for Lateral 123.45, public roads and bridges, Unit 7, reconstr. Main canal, Station 6516 plus 86.70 to 6517 plus 00, Coachella Valley distribution system, Boulder Canyon Proj., Spec. 2747, to R. V. Lloyd & Co., Indio, Calif., **$2,070,089.** Bids 9/8, awarded 9/30. CD 9/19, under LB.

†**Arkansas**—U. S. Eng., P. O. Box 97, Memphis, 1, Tenn., Sept. 13, placing approx. 200,000 cu. yd. earthwork, White River Levee Dist. of Woodruff, Monroe and Prairie Counties, and Drainage Dist. 7, Poinsett Co., CIVENG-40-041-50-26, Item L-185R-WR to Forcum-James Co., Dyersburg, Tenn., **$46,190.** Bids 9/13, awarded 9/22.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
●	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

AIRPORTS AND AIRBASES

BIDS ASKED

November 30

†**N. Y., Rome**—FLIGHT HAZARDS—U. S. Eng., 120 Wall St., New York, Zone 5, removing flight hazards at Griffiss Air Base.

CONTRACTS AWARDED

Ga., Augusta—BLDG. ALTERATIONS—City, Augusta, bldgs. alterations and addns. at Bush Field, to Newman Bros. Constr. Co., Augusta, **$103,000.** Bids 10/3. CD 9/21.

PUBLIC BUILDINGS

BIDS ASKED

October 26

N. Y., Marcy—STAFF HOUSING—Bureau Contracts & Accounts, Albany, staff housing.

N. Y., Middletown—STAFF HOUSING—Bureau Contracts & Accounts, Albany, Staff Housing Bldgs. 123, 124 and 125 at Middletown State Homeopathic Hospital. Extended date. CD 10/5.

N. Y., Ogdensburg—STAFF HOUSING—Bureau Contracts & Accounts, Albany, Staff Housing Bldgs. 88 and 89, St Lawrence State Hospital. Extended date. CD 10/5.

About November 1

La., Winnsboro—SCHOOL—Franklin Parish School Bd., elementary school, $325,000. John W. Baker, Winnsboro, archt. CD 10/7.

LOW BIDDERS

†**Ill., Chicago**—HOSPITAL ELEVATORS—Veterans Admin., Vermont Ave., between H and I Sts., N. W. Wash., D. C., rejected bids Sept. 13, elevators for General Medical Surgical Hospital, West Side, LB. **$309,072.** CD 9/15, under LB.

Ky., Owensboro—HOUSING—City, 174 housing units, from Clark Constr. Co., Owensboro, **$882,717.** CD 9/14.

Md., Rockville — HIGH SCHOOL — Montgomery Co. Bd. Educ., Rockville, brick, concrete negro high school, from L. J. Keller & Sons, Jefferson, **$334,770.** McLeod & Ferrara, 1830 Jefferson Pl. N.W. Wash., D. C., archt. CD 9/7.

N. Y., Brentwood—ELECTRICAL WORK, etc.—Bureau Contracts & Accounts, Albany, Oct. 5, electrical work for turbine generator set, Power House Bldg. No. 35 at Pilgrim State Hospital from Turbine Equipment Co., 75 West St., New York Zone 6, **$132,457.**

Pa., Clarks Summit—INFIRMARY—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, Oct. 5, general contract renovating in-

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firmary bldg. group at Clarks Summit State Hospital, from T. F. Flanagan, Dock and Tompkin Sts., Pittston, **$335,791.** CD 9/8.

CONTRACTS AWARDED

●†**Ill., Chicago**—HOSPITAL—Veterans Admin., Vermont Ave., between H and I Sts., N.W, Wash., 25, D. C., General Medical Surgical Hospital, West Side, to J. Salcedo Co., Inc., 185 N. Wabash St., **$6,985,905.** Bids 9/13. CD 9/15, under LB.

●**La., Baton Rouge**—HOSPITAL—State Div. Admin., Capitol Annex., Baton Rouge, eight 1 story concrete, brick bldgs., Southeast Louisiana State Hospital, Hy. 190, to R. P. Farnsworth & Co., 1515 S. Salcedo St., New Orleans, **$2,570,054.** Bids 10/5. CD 10/7, under LB.

●†**Md., Bethesda**—CLINICAL BLDG. ELEVATORS—Federal Wks. Admin., P. Bldg. Admin., F. St., between 18 and 19 Sts., N.W, Wash., 25, D. C., Elevators Clinical Center Bldg., 10 to Otis Elevator Co., 910 18 St. N.W., Wash., D. C., **$1,096,495.** CD 8/29, under LB.

Miss., State College—PLANT—State Bldg. Comn., New Capitol Bldg., Jackson, dairy production plant, to H & H Constr. Co., Starkville, **$186,347.** CD 9/27.

●†**N. M., Albuquerque**—HOSPITAL—U. S. Eng., P. O. Box 1538, 150-bed hospital, Sandia Base, Eng-29-005-50-1, Lot 1, to Robert E. McKee, 1918 Texas St., El Paso, Tex., **$1,372,300.** Bids 9/14. CD 9/20, under LB.

Alta., Edmonton—D WELLINGS — Government of Canada, Hunter Bldg., Ottawa, Ont., 50 dwellings, to Poole Constr. Co., Ltd., 218 Tegler Bldg., **$623,000.**

Newfoundland, Goose Bay—DWELLINGS—Central Mortgage & Housing Corp., 70 Lyon St., Ottawa, Ont., 40 dwellings, to Terminal Constr. Co., Ltd., Dominion Sq. Bldg., Montreal, Que. **$475,000.**

●**Ont., Toronto** — PLANT — Hydro Electric Comn. of Ontario, 620 University Ave., superstructure of steam generating plant, to Foundation Co. on Ontario Ltd., 1220 Bay St., Toronto, Approx. **$40,000,000.** CD 3/30.

Ont., Windsor—HOUSING—Central Mortgage & Housing Corp., 395 Fleet St. W., Toronto, installing permanent foundation and walls under approx. 500 existing houses, to Albert Loiselle et Fils, Registered 9 and Division Sts., Brantford. Approx. **$450,000.** A. J. E. Smith, c/o owner, ch. engr. CD 9/15.

COMMERCIAL BUILDINGS

BIDS ASKED

October 25

Ga., Decatur — CHURCH — First Baptist Church, c/o Ivey & Crook, archts., Candler Bldg., church. Plans deposit $25. CD 10/21/46.

SOON LETS CONTRACT

N. Y., Far Rockaway—HIGH SCHOOL—Hebrew Institute of Long Island, Inc., 364 Beach 19 St., soon lets contract Junior High School. F. P. Wiedersum, 240 Rockaway Ave., Valley Stream, archt.

Tex., Fort Worth — CHURCH — University Christian Church, c/o Rev. Granville Walker, 2720 University St., soon lets contract church addn. incl. educational bldg. and chapel, $350,000. Wiley G. Clarkson, 605 First Natl. Bank Bldg., archt. CD 9/21.

CONTRACTS AWARDED

Fla., Daytona Beach — APARTMENT DEVELOPMENT—E. L. Ferran & Joe Hendricks, Daytona Beach, apartment development. Owner builds. **$250,000.**

Fla., St. Petersburg—HOMES—Doyle Minter, c/o A. L. Pfau, Jr., 1100 3 St. N., 120 homes. Owner builds. Approx. **$340,000.**

Fla., Tampa—HOMES—Davis Island Corp., c/o Howard Frankland, pres., 238 E. Davis Blvd., 25 homes. Owner builds. Approx. **$100,000.**

Md., Rockville—HOUSING—Rockville Development Corp., c/o contractor, 2 and 3 story, brick, cinder block apartment bldg., incl. 165 units, Dawson St. and N. Adams St., to Berlin Constr. Co., 2919 Brandywine St. N.W., Wash., D. C., John M. Spence, 3221 Oliver St. N.W., Wash., D. C., archts.

S. C., Columbia — APARTMENT — King's Court Apartments, c/o Stork & Lyles, archts., 1302 Main St., apartment development. Owner builds. **$300,000.** CD 9/15.

Tenn., Memphis—APARTMENT—Wallace E. Johnson, Inc., 875 Raynor St., apartment development near Chickasaw Golf Club. Force account. **$500,000.**

Tex., Houston—DWELLINGS—East End Development Co., 1584 Telephone Rd., 35 dwellings. Owner builds. Approx. **$318,750.** CD 9/30.

Tex., Houston—DWELLINGS—L. A. & B. N. Hickman, c/o Claremont Addn., 31 dwellings. Owner builds. Approx. **$250,000.** CD 9/30.

●**Tex., Houston** — MERCANTILE — Sakowitz Bros., 720 Main St., 4 story mercantile bldg. to Tellepsen Constr. Co., 1710 Telephone Rd. Approx. **$7,000,000.** Bids 9/26. CD 9/26.

Tex., Houston—DWELLINGS—Parker Bros., 5303 Navigation Blvd., 100 addnl. dwellings, to R. C. Heinef, 7443 Park Pl. Blvd., **$690,000.** CD 10/5.

Tex., San Antonio — DWELLINGS — E. J. Burke & Sons, 4221 S. Zarzamora St., 104 addnl. dwellings, area adjacent to Highland Hills. Owner builds. Approx. **$650,000.** CD 9/30.

INDUSTRIAL BUILDINGS

BIDS ASKED

October 27

Ont., Ottawa—LABORATORY—Purchasing Agent, c/o National Research Council, Sussex St., laboratory. Approx. $150,000. G. Brault, Dpt. P. Wks., Ottawa, archt.

SOON LETS CONTRACT

●**Ind., Fort Wayne**—WAREHOUSE, etc.—S. S. Kresge Co., 2727 2 Ave., Detroit, Mich., soon lets contract 1 and 2 story warehouse and office, Ferguson Rd. **$1,000,000.** CD 10/4.

Tex., San Antonio — SERVICE STATION GARAGE SHOP—U. K. Garage, O. C. Uhl mgr., 119 E. Martin St., soon lets contract 1 story, concrete, masonry service station and garage shop, $75,000. John M. Mariott, archt. and Wallis J. Wade, assoc. archts., 905 First Natl. Bank Bldg.

LOW BIDDERS

Tex., Beaumont — WAREHOUSE — Sears, Roebuck & Co., 500 Orleans St., cancelled bids to have been opened, 80,000 sq. ft. warehouse. **$400,000.** CD 9/26.

CONTRACTS AWARDED

Conn., Old Greenwich—FACTORY ADDN., etc.—Electrolux Corp., 500 Fifth Ave., New York, 18, N. Y., factory addn. and recreation bldg., to Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y., Raymond & Rado, 101 Park Ave., New York, 17, N. Y., engrs.

La., Baton Rouge — PLANT — Thomas J. Moran's Sons, c/o A. Hays Town, Masonic Bldg., archt., printing plant, to William Smith, c/o archt., **$90,000.**

●**Md., Halethorpe** — PLANT — American Can Co., C. H. Black, pres., 230 Park Ave., New York, N. Y., 1 story, brick, steel mfg. plant, 43 acre site off Baltimore-Washington Expressway, to Turner Constr. Co., 1500 Walnut St., Phila., Pa., **$1,500,000.**

N. Y., New York — GARAGE, etc. — Sidney Claman, 255 W. 43 St., Zone 18, garage and offices, 249-51 W. 43 St. Owner builds. Approx. **$80,000.** Lama, Proskauer & Prober, 383 Pearl St., Brooklyn, Zone 1, archts.

Ont., Holland Landing — PLANT — Office Specialty Mfg. Co., Ltd., 31 Timothy St. E., Newmarket, 1 story, 80x250 ft. steel, brick plant, concrete fdns. and floors, to F. S. Milligan & Co., Ltd., 388 Yonge St., Toronto. Approx. **$300,000.** Bids 9/21. CD 9/19.

Que., St. Laurent — FOUNDRY — Robert Mitchell Co., Ltd., 750 Belair Ave., Montreal, superstructure foundry plant addn. off Montreal Blvd. near Canadian Pacific Ry. tracks, to Anglin-Norcross, Quebec Ltd., 892 Sherbrooke St. W., Montreal. Approx. **$300,000.** E. C. Miller, 485 Mc Gill St., Montreal, archt.

UNCLASSIFIED

BIDS ASKED

October 27

Nebraska—RURAL DISTRIBUTION LINES—Wayne County Rural Public Power Dist., Wayne, 143 mi. rural distr. lines, Wayne and Pierce Counties. $140,000. Henningson Eng. Co., Standard Oil Bldg., Omaha, engr. CD 6/13/46.

LOW BIDDERS

N. Y., New York—PLAYGROUND—Comr. Parks, Dpt. Parks, 64 St. and 5 Ave., Zone 21, Oct. 5, Contr. No. M-10-144, constructing Wollman Memorial Playground and Ice Skating Rink, Central Park, from Hank Constr. Co., 209 E. 120 St., **$395,000*****Contr. No. M-10-244, refrigerating rink, from American Carbonic Corp., 111 S. 4 St., Harrison, N. J., **$280,000***** Contr. M-10-344, electrical work, from Davidson Electric Co., 1265 Atlantic Ave., Brooklyn, Zone 16, **$69,000.** CD 9/28.

CONTRACTS AWARDED

Fla., Miami Beach — SWIMMING POOL—Triton Hotel, 2729 Collins Ave., Miami Beach, swimming pool, to Taylor Constr. Co., Rte. 1, P. O. Box 189, Miami. Approx. **$50,000.**

Ga., Columbus—MOTOR COURT—Outpost Inn, c/o contractor, motor court, to Jordon Contracting Co., Andrews Rd., Columbus. Approx. **$75,000.**

Kansas—RURAL DISTRIBUTION LINES—Radiant Electric Co-operative, Inc., Howard L. Bell, mgr., Fredonia, 391 mi. rural distr. lines, Wilson Co., 56 mi. conversion lines, to Crescent Electrical Co., 808 Delaware St., Kansas City, Mo., **$389,944.** Est. $325,000. Bids 8/9. Awarded 8/16. CD 7/26.

La., New Orleans—RADIO STATION—Radio Station WDSU, c/o Goldstein, Parham & Labouisse, archt., Audubon Bank Bldg., radio station, to Gervais F. Farrot Co., Balter Bldg., over **$50,000.** D 5/5.

Minnesota—RURAL DISTRIBUTION LINES—Agra Lite Electric Co-operative, Benson, approx. 47 mi. rural distribution lines in Big Stone and Swift Counties. Force account. Approx. **$150,000.** CD 10/11/48.

Ont., Elmira — ARENA — Municipality, Elmira, arena, to N. O. Hipel, Preston, **$85,000.**

Ont., Oshawa—TRANSMITTER—Government of Canada, Dpt. of National Defense, Cartier Sq., Ottawa, transmitter bldg., to W. B. Sullivan Constr. Ltd., 20 Bloor, W. Toronto, **$98,395.** Bids 1/26. CD 1/13.

CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

October 24

Md., Hyattsville — Washington Sanitary Comn., Hamilton St., approx. 10,000 ft. 42 in. force main from Rocky Gorge Pumping Station to Willis School Filtration Plant, near Laurel, Contr. 693-W. Plans deposit $10; adv. ENR 10/20.

October 25

Ia., Des Moines — Polk Co., Des Moines, water sys. near here. $60,000.

O., Middletown—City, City Hall, WW imprvs., Contr. 1A, filtrary feeder mains; Contr. 1B, secondary feeder and distr. mains; Contr. 1D, 250,000 gal. elevated steel tank. Plans deposit $15. Floyd G. Browne & Assoc., 196 S. Main St., Marion, consult. engrs. CD 9/26.

October 27

Mass., Boston—Commonwealth of Massachusetts, at office Metropolitan Dist. Comn., 20 Somerset St., open storage reservoir, gatehouse foundations and substructure, connecting steel-plate concrete encased, mortar-lined pipeline, rein.-con. pipeline for circulation of incoming water, of relocation of Chickatawbut Rd., placing slope protections, fencing, spillway, drainage facilities, appurtenances, Blue Hills Reservoir, Quincy, Contr. 187. Plans deposit $10. K. R. Kennison, ch. engr. CD 5/12/44.

Tex., Fort Worth—City, City Hall, 6,000 ft. 36 in. c. i. watermains from Holly Plant to Bluff St. $235,000. Plans deposit $15, Joe J. Rady, 811 Insurance Bldg., engr. CD 2/4.

About November 1

+N. M., Albuquerque—U. S. Eng., P. O. Box 1538, water supply sys., Sandia Base, Stage VI, Serial No. Eng-29-005-50-19.

November 1

Tenn., Kingsport — City, water filtration plant addn. Plans deposit $20. Wiedeman & Singleton, P. O. Box 1878, Atlanta, Ga., engrs. CD 4/5/46.

November 2

S. C., Hartsville—City, water distr. sys. extens. Barber, Keels & Assoc., Inc., 1307 Marion St., Columbia, engr.

November 7

Ia., Spirit Lake—City, City Hall, WW imprvs., $190,000. Henningson Eng. Co., Standard Oil Bldg. Omaha, Neb., engr.

November 8

+Calif., Livermore—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash., 25, D. C., drilling, developing, testing one deep well for Veterans Administration Hospital, Spec. 4944, Proj. No. 2209. Plans deposit $25.

N. D., Kindred—City, WW sys. $60,000. Dakota Eng. & Constr. Co., Valley City, engr.

November 10

●Calif., San Francisco—Public Utilities Comn., City Hall, about 34 mi. pipeline from Irvington Portal, to Pulgas, near Crystal Springs Lake, Spec. 524, $10,000,000. Plans deposit $50. Extended date. CD 9/28.

November 14

Pa., Erie—City, Bureau Water, 708 French St., WW imprvs., pumping, piping, $640,961. Chester Engineers, 210 E. Park Way, N. S. Pittsburgh, engrs. Bids 6/28 rejected. L.B. $540,200. CD 7/25, under LB.

November 21

Fla., Jacksonville Beach—City, City Hall, imprv. water sys. incl. water treatment plant, $255,000. Smith & Gillespie, Roberts Bldg., Jacksonville, Zone 1, engrs. CD 2/4.

LOW BIDDERS

O., University Heights—City, City Hall, Warrensville Center Rd. and Silsby St., watermains, storm and sanitary sewers in University Parkway from Milton Rd. east to Green Rd., from Angela Marra, 502 Frederick Bldg., 2063 E. 4 St., Cleveland, **$51,732.** Est. $50,000. F. A. Pease Eng. Co., 603 Frederick Bldg., Cleveland, city engr. CD 9/25/46, under Sewers, etc.

Tenn., Rogersville—City, Oct. 5, WW imprvs., from Roy A. Payne & Co., 2704 Glass St., Chattanooga, **$281,413.** CD 9/15.

Tex., Waller—City, Oct. 4, WW sys., from A. S. Koehler & Co., 4219 Yoakum St., Houston, **$47,190.** Est. $85,000. CD 9/22.

CONTRACTS AWARDED

Neb., Superior—City, WW sys. imprvs., to Roberts Constr. Co., Trust Bldg., Lincoln, **$89,702.** Bids 9/30. CD 9/19.

N. D., Langdon — City, water and sewer extens., Imhoff tan, to Northern Imprvt. Co., 633 1st Ave. N., Fargo, **$87,797.** Bids 9/13. Lium & Burdick, 316 Cambridge St., Grand Forks, engrs.

●Pa., Phila.—Dpt. P. Wks., City Hall Annex, Queen Lane Filter Plant, preliminary treatment plant, appurtenances, to Progressive Builders, Inc., Merchantville, **$2,397,078.** Elbert J. Taylor, Water Bureau Chief. Bids 9/28. CD 9/1.

Que., Prevost—Municipality, WW sys., to Kelly Constr. Co., Grenville, **$79,000.** Bids 9/23.

Que., Terrebonne—Municipality, E. F. Chalifoux, secy., installing WW sys., to Kelly Constr. Co., Grenville, Approx. **$79,000.** Bids 9/23.

SEWERS, WASTE DISPOSAL

BIDS ASKED

October 24

Md., Towson—Bd. Comrs. Baltimore Co., Court House, approx. 3,044 lin. ft. 18-to 48-in. rein.-con. pipe, 15,230 lin. ft. 6 and 8 in. vitr. clay sewers and house connections, 20,942 lin. ft. 6-to 16-in. c.i. watermains, etc., Contr. 179 D. S. & W. Wm. F. Neale, ch. engr.

Pa., Phila—Dpt. P. Wks., City Hall Annex, sewer for other than new housing; sewers for new housing, $100,000 each. A. Zane Hoffman, c/o owner, ch. engr. CD 3/1/46.

October 26

Ia., Boone—City, City Hall, sewers, sewage plant, $110,000. Henningson Eng. Co., Standard Oil Bldg., Omaha, Neb., engr. CD 1/22/47.

Kan., Ellinwood—Lyle Richardson, city clk., City Hall, sanitary sewer extens. Plans deposit $5. Wilson & Co., 223 N. Santa Fe St., Salina, engrs.

October 27

Mass., Boston — Commonwealth of Mass., Metropolitan Distr. Comrs., 20 Somerset St., Contr. 128, sewerage pumping equipment, Deer Island Pumping Station. Approx. $50,000. Plans deposit $10. CD 6/28.

October 28

Conn., Bridgeport—Fred Schwarzkopf, clk. Highway Co of City of Bridgeport, City Hall, constructing West Side Sewage Treatment Plant, Contr. 18 Sludge Disposal. Plans deposit $25. CD 9/13.

Minn., Onamia—Village, W. A. Lipetzky, clk., sanitary sewer collection sys. and sewage treatment plant, Approx. $85,000. Plans deposit $20. Hitchcock & Estabrook, 521 Sexton Bldg., Minneapolis, engrs.

October 31

Calif., Hemet—City, 500,000 gal. daily capacity sewage treatment plant, two stage, bio chemical, $100,000. R. S. Brooks & J. C. Carwill, Central Bldg., Monrovia, engrs. CD 8/25.

Calif., Madera—City, City Hall, activated sludge treatment plant, $175,000. Plans deposit $50. A. Metz, South D St., Madera, city engr. Francis H. Bulot, 411 W. 5 St., Los Angeles, engr. CD 10/14/48.

Fla., Jacksonville Beach—City, City Hall, imprv. sewerage sys. incl. sewage disposal plant, $260,000. Smith & Gillespie, Roberts Bldg., Jacksonville, Zone 1, engrs. CD 2/4.

Ab ut November 1

●Ga., Atlanta—C.ty, incinerator addn. $1,250,000. Robert & Co. Assoc., 96 Poplar St. N. W., archts. CD 3/24.

November 1

R. I., Providence—Asst. office Franklyn A. Adams, State Purch. Agt., State House, Blackstone Valley Intercepter, Sect. B, incl. 4,010 ft. 60 in. sewer incl. approx. 2,565 ft. in tunnel; 3,730 ft. 54 in. sewer; 265 ft. 6x3 ft. sewer; 535 ft. 15 in. sewer, appurtenant work. Plans deposit $25. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. CD 2/27/48.

Ont., Smith Falls—F. R. Gilroy, town clk., Smith Falls, trunk sewers, sewage disposal plant, Approx. $250,000. G. L. Berkeley, c/o owner, engr. CD 12/15.

November 2

S. C., Hartsville — City, sanitary sewer imprvs., incl. treatment plant. Approx. $50,000. Plans deposit $20. Barber, Keels & Assoc., 1307 Marion St., Columbia, engrs.

November 9

N. Y., Binghamton—Bd. Contr. & Supply, Municipal Bldg., general contract Pennsylvania Ave., Pumping Station, Contr. 5; pumping equip., Contr. 6; electrical equip., Contr. 7; plumbing equip., Contr. 8; intercepting sewers incl. river crossing, Contr. 11C. Plans deposit $35. CD 12/6/46.

LOW BIDDERS

Calif., Los Angeles—City, City Hall, Oct. 5, administration, laboratory bldgs. for Hyperion Activated Sludge Plant, from Gennario Iammini, 2701 Sepulveda Blvd., Manhattan Beach, **$419,499.** Est. $450,000. CD 8/30.

Calif., Oakland—City, City Hall, Oct. 4, rein.-con. sewer with concrete cradle, timber platform and pile foundations from E. 8 St. and 3 Ave. to 1 St. right-of-way of Central Pacific Ry., from Stolt, Inc., 8451 San Leandro St., **$146,266.** CD 9/21.

N. M., Las Vegas—City, City Hall, Sept. 28, sanitary sewer lines, treatment plant, from W. A. Walling, Santa Fe, **$81,912.** Est. $90,000. Herkenoff & Turner, 223 Montezuma St., Santa Fe, engrs.

Tex., Dallas—City, City Hall, Main and Harwood Sts., Oct. 4, storm sewers on Oakland Channel, Wilkens Ave. to Toland St. from City Constr. Co., 2411 Inwood St., **$60,344.** Est. $50,000. CD 9/21.

●Tex., San Antonio—City, City Hall, Military Plaza, Oct. 6, Sect. 1, approx. 14,400 lin. ft. 42 in. concrete pipe, West Side main sewer line; Sect. 2, 27,800 lin. ft. 33 and 36 in. concrete pipe, manholes, appurtenances, etc, West Side Main sewer line, from Heidenfels Bros., P. O. Box, 1917, Corpus Christi, **$101,717** est. $275,000 and **$248,000** est. $350,000 respectively. CD 9/26.

Va., Front Royal—Town, Oct. 4, sewage treatment plant, from Castle Constr. Co., Front Royal, **$177,537.** R. Stuart Royer & Assoc., 401 Virginia Bldg., Richmond, engrs. CD 2/14/47.

Wis., Milwaukee — Metropolitan Sewerage Comn. of Milwaukee Co., Jones Island, Zone 1, Oct. 6, special section monolithic concrete main sewer in Menomonee River Parkway, from Otto P. Seefeld, 5101 W. State St., Zone 8, **$239,646.** CD 9/21.

CONTRACTS AWARDED

Calif., Redondo Beach—City, sanitary sewers in Redondo Beach Blvd., to V. C. K. Constr. Co., 629 S. Atlantic Blvd., Los Angeles, **$547,-575.** Est. $750,000. Bids 9/26, awarded 10/3. CD 10/7, under LB.

Mass., Boston — Commonwealth of Mass., Metropolitan Distr. Comn., 20 Somerset St., Boston, Sept. 22, Contr. 140, portion Nut Island Sewerage Treatment Plant, to Thomas O'Connor & Co., 238 Main St., Cambridge, **$812,038.** Bids 9/22, awarded 9/30. CD 9/30, under LB.

Neb., Paxton—City, sewerage sys., to Beal Constr. Co., Brule, **$66,160.** Est. $77,906. Bids 6/4. CD 9/29.

N. M., Las Vegas—City, City Hall, sanitary sewers, treatment plant to Western Constr. Co., Hobbs, **$73,000.** Bids 9/27. CD 10/11, under LB.

●N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. 5, structures and equip. for Owl's Head Sewage Treatment Works to Thompson-Starrett Co., Inc., 444 Madison Ave., New York, **$6,431,580.** Contr. 10, plumbing, to Joseph E. Egan, 3031 Grand Concourse, New York, **$124,973.** Bids 9/21. CD 9/28, under LB.

Tex., Sweetwater—City, 1½ mi. sanitary sewer lines, southeast sect. of city. Purchase and Hire, **$58,000.** Roy Ducket, city engr.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

October 25	**October 26**
Iowa	**New York**
North Carolina	**November 2**
West Virginia	**California**
November 10	
Indiana	

October 24

N. Y., New York—President Manhattan Boro, Municipal Bldg., Zone 7, completing viaduct overpasses between Franklin D. Roosevelt Dr. and 1st Ave., at E. 42 and E. 48 Sts., etc., Contr. 164. Plans deposit $50.

October 31

N. J., Jersey City—At Office Chief Engineer, Port of New York Auth., 111 Eighth Ave., New York, 11, N. Y. concrete deck and approaches for exit viaduct from Holland Tunnel, Contr. HT-13. Plans deposit $25.

November 2

●+Wash., Bridgeport—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, central three-span continuous steel deck truss, hy. bridge with flanking girder and beam approaches, 1,146 ft. long over Columbia River, incl. substructure, 6 concrete piers and 2 concrete abutments, CIVENG-45-108-50-20, $1,250,000, Extended date. CD 10/3.

November 8

+Washington—U. S. Eng., 3735 E. Marginal Way, Seattle, Zone 4, Columbia River Bridge on access hy. to Chief Joseph Dam near Bridgeport, Serial No. CIVENG—45108-50-20. CD 9/12/44.

November 15

Calif., San Diego—City, Civic Center Bldg., structural steel, concrete bridge over Flood Control Channel, Midway Ave. Approx. $50,000. Alden K. Fogg, city engr. CD 12/6/44.

LOW BIDDERS

Massachusetts—Commonwealth of Massachusetts, Metropolitan Distr. Comn., 20 Somerset St., Boston, Oct. 6, Eliot Br., Gerry's Landing, Cambridge and Boston, from Monroe-Langstroth, Inc., 52 N. Washington St., North Attleboro, **$736,189.** Burns & Kenerson, Inc., 47 Lafayette St., Marblehead, engrs.

Nebraska—State Dpt. Roads & Irrigation, Lincoln, Sept. 8, 3 bridges and guard rail, Louisville-Plattsmouth Hy., FA—S-92, Cass Co., from Platte Valley Constr. Co., Grand Island, **$89,920.** CD 8/29.

Nebraska—State Dpt. Roads & Irrigation, Lincoln, culverts, 17.3 mi. graded earth road, FA—S-304, Wynot-Laurel from Platte Valley Constr. Co., Grand Island, **$57,941.** CD 9/20, under Streets and Roads, LB.

●Pennsylvania — State Hy. Dpt., Harrisburg, Sept. 30, steel deck truss bridge 1,013 ft. L. R. 763 (2A), T. R. U. S. 22 and 30, Frazer St.-Penn Lincoln Parkway, Allegheny Co., from B. Perini & Sons, Inc., 73 Montwait Ave., Framingham, Mass., **$1,847,361** • • • repair 9-span 1,413 ft. steel deck truss bridge, L. R. 08077 (3), over North Branch of the Susquehanna River, Bradford Co., from Pine Brook Iron Wks., 105 Middle St., Scranton, **$235,892** • • • I-beam bridge and native stone or crushed aggregate base with bit. 1,582 ft. long, L. R. 64125, Sec. 1, over Swickley Creek,

Westmoreland Co., from Adam Eidemiller, Inc., Greensburg, **$262,947.**

Tex., Houston—Harris County Flood Control Dist., c/o R. J. Putney, engr., Stewart Bldg., Carpenters Bayou creosote and timber bridge, from Roy L. Anderson, Inc., Aldine-Westfield Rd., **$79,520.** Est. $75,000. CD 9/28.

Washington—State Hy. Dpt., Olympia, Oct. 7, steel truss span with concrete girder approaches, together with grading, 0.172 mi. Primary State Hy. 16, E. R. P. 34-S-5(1) Unit 2, Okanogan Co., from Riggle & Creighton, Yakima, **$134,648.** CD 9/22.

CONTRACTS AWARDED

O., Cleveland—Comrs. Cuyahoga Co., Lakeside and Ontario Sts., bridge, approaches over Ohio Canal, on Stone Rd. to Horvitz Co., Midland Bank Bldg., **$110,832.** Est. $117,000. Bids 10/3, awarded 10/6. CD 9/22.

●**Pennsylvania**—State Hy. Dpt., Harrisburg, continuous steel deck truss and I-beam viaduct, consisting 5 truss spans and 24 I-beam spans and c. conc. paving 7,395 ft. over Allegheny River between city of New Kensington and Tarentum Boro, L. R. 188 (2), 70 (12), T. R. 56 and 28, Road 9801, Westmoreland and Allegheny Counties, to John F. Casey & Co., P. O. Box 8388, Pittsburgh, **$3,765,475.** Bids 9/30. CD 10/4, under LB.

South Dakota — State Hy. Comn., Pierre, 0.046 mi. triple 20 ft. plate pipe arch, FAS 260 (10), Hughes Co., to Bonesteel & Hyde, Inc., Rapid City, **$130,169.** Bids 9/27. CD 9/15.

Washington—State Hy. Dpt., Olympia, rein.-con. rigid frame over crossing on 0.011 mi. Primary State Hy. 1, south of Castle Rock, Cowlitz Co., to Anderson Bridge Constr. Co., 4130 S. Adams St., Tacoma, **$88,500;** 3 rein.-con slab bridge on 0.523 mi. Secondary State Hy. 4-B, Wilburn to Odessa together with grading, surf., Lincoln Co., to Slather & Sons, P.O. Box 197, Spokane, **$57,506.** Bids 10/7. CD 9/22.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

October 25
Iowa
Massachusetts
North Carolina
South Dakota
West Virginia
October 26
New York

October 28
Minnesota
November 1
Kansas
New Jersey
Wisconsin
November 2
California

November 3
California

October 25

O., Toledo—City, imprv. Woodmore St. and Tadmore Dr., $22,279; imprv. Sterling, Edna and Beecham Sts., $29,941. Plans deposit $10. M. J. Curtis, Orange and Erie Sts., city street div. engr. CD 10/14-48.

November 3

Fla., Jacksonville—City, City Hall, 12,157 lin. ft. concrete combination curb and gutter on several streets, W. E. Shedden, Engineers Bldg., ch. engr. CD 5/1/47.

LOW BIDDERS

California—State Div. Hys., Sacramento, Oct. 5, c. conc. on cement treated sub-grade, with plant mix on existing pavement, cement stabilized base material 2.5 mi. to provide 4 lane divided hy. between 0.2 mi. east of Ventura Co. line and 0.2 mi. east of Carpenteria, Ventura and Santa Barbara Counties, from Granite Constr. Co., Box 900, Watsonville, **$661,807.** CD 9/0.

Florida — State Hy. Dpt., Ocala Municipal Auditorium, Ocala, Oct. 3, sand-clay-base with bit. s.5.38 mi. Rd. 75 between Panama City and Bayou George, State Proj. Job No. 4604-110, Bay Co. and Ocala lime rock stabilized base with bit. surf. tr. 6 mi. Rd 255 between Rd. 30 in Lee and point approx. 6 mi. south State Proj. Job. 3575-101, Madison Co., from Caddell & Jackson, 2014 Dennis St., Jacksonville, **$189,054** and **$80,678** respectively***bit. 4.534 mi. State Rd. 39 between Plant City and Hopewell, Fed. Aid Secondary Proj. S-226 (4), 1007-202, Hillsborough Co., and Ocala rock base with bit. 7.386 mi. State Rd. 35, between Lakeland and Providence, Fed. Aid Proj. F-031-1 (1), Job 1621-301, Polk Co., from J. W. Conner & Sons, Inc., 3915 E. Broadway Ave., Tampa, **$93,126** and **$266,794** respectively*** grading, stabilizing roadbed, Ocala rock base, single course surf. tr. 8.787 mi. State Rd. 55 between Chiefland and The Suwanee River, Fed. Aid Proj. F-031-1 (q), Job No. 3104-01 and 3401-201, Gilchrist and Levy Counties, from W. H. Armston Co., Inc., Dunedin, **$185-545***grading, S.B.R.M., small drainage structures 5.823 mi. State Rd. 390 between State Rd. 30 (4-U) in Panama City and State Rd. 77, Lynn Haven, Fed. Aid Secondary Proj. S-62 (1), Job No. 4614-201 and State Job 4614-101, Bay Co., from Doyle Pope, Quincy, **$121,533***** bit. 7.387 mi. Rd. 775 between Rd. 45 and Englewood, State Proj. Job 1705-106, Sarasota Co., from Ryan Constr. Co., 2406 Horatio St., Tampa, **$140,605.** CD 9/23.

Fla., Miami—City, Oct. 5, sidewalk imprvs., SK-122, Item 1, and SK-134, Item 1, from Ace Concrete Service Co., 3153 N.W. South River Dr., **$73,710** and **$155,250** respectively. CD 9/27.

Kentucky—State Hy. Dpt., Frankfort, rejected bids Sept. 23, local bank or creek grav. 4.554 mi., Ky. 58 (Ky. 348 Road, RS-42-648, Graves Co., L. B. **$109,197;** traffic bound slag 5.43 mi. Beauty-Louisa Rd., RS 80-121, Martin Co., L. B. **$115,510.** CD 10/3; under LB.

Kentucky—State Hy. Dpt., Frankfort, Oct. 7, high type surf., wid'n., 0.524 mi. Bardstown-Elizabethtown (Stephen Foster Ave., U. S. 62) Rd., S. P. F 196 (7), Nelson Co., from Kelly Contrg. Co., Fincastle Bldg., Louisville, **$72,965***traffic bound limestone 3.096 mi. Hatcher-Kirsteadtown Rd., S. P. 109-248, Taylor Co., from Fuller-Davies Co., Covington, **$70,550** ***traffic bound limestone 4.465 mi. Princeton-Lamasco Rd., S. P. RS 17-362, Caldwell Co., from J. H. Barr Constr. Co., Harrisburg, Ill., **$84,492***traffic bound river gravel 6.328 mi. Boswell Bridge Spur Rd., from Yelvington-Hancock Co. line, Rs. S. P. RS 30-497, Davies Co., from Whitesville Constr. Co., Whitesville, **$54,946***reconstruction and traffic bound surf. 4.649 mi. Kehoe-Lowder School Rd., S. P. RS 45-351, Greenup Co., from Talbott-Myers Constr. Co., Winchester, **$111,891***traffic bound limestone 5.663 mi. Vertress-Falberty Rd., S. P. RS 47-679, Hardin Co., from George M. Eady Co., 340 Byrne St., Louisville, **$95,878** ***traffic bound limestone 1.5 mi. Caney Creek Rd., S. P. RS 60-258, Knott Co., from Blair & Oldham Constr. Co., Whitesburg, **$63,356***** traffic bound limestone 5.31 mi. Barbourville-Walker Memorial State Park-Dishman Spring Rd., S. P. RS 61-390, Knox Co., from H. R. Campbell & Sons, Inc., Covington, **$61,964***traffic bound surf. 4.036 mi. Shelville-Bent Rd., S. P. RS 100-695, Pulaski Co., from Arnett Constr. Co., Berea, **$57,086.** CD 9/21.

●**Louisiana**—State Hy. Dpt., Baton Rouge, Oct. 5, b. conc. 4.374 mi. Ville Platte Tate Cove Hy., St. Rt. 373-01-01, Evangeline Parish and c. conc. 8.118 mi. Baker-Slaughter Hy. State Rt. 152, rein.-con. deck girder bridges, S. P. 250-01-05, F. A. S. P. S. 69 (4), Rapides-Vernon Parish, from T. L. James & Co. Inc., Ruston, **$255,183** and **$584,182** respectively. CD 9/22***b. conc. drainage structures 4.999 mi., timber trestle bridge, Church Point Prudhomme Hy., State Rt. 374 and 1036, S. P. 392-01-03, Acadia Parish, from W. H. Patterson & Co., Arbutus Standard Heights, Baton Rouge, **$106,812***** c. conc. 3.929 mi. drainage structures, Youngsville-Lafayette Hy., State S. P. 216-06-06, F. A. S. P. S. 115 (1), Lafayette Parish, from Burke & Kingston, Inc., New Iberia, **$237,866.** CD 9/9.

Md., Baltimore—City, City Hall, Oct. 5, Contr. 1023, c. conc. paving, from Carozza-Hamill & Co., 10 W. 25 St., **$125,988.** CD 9/29.

Mass., Boston—City of Boston P. Wks. Dpt., City Hall Annex, Sept. 30, sheet asph. paving, Poplar St., etc., Rosindale, from J. P. Condon Corp., 105 Coolidge Hill Rd., Watertown, **$71,416.**

✦**Minnesota**—State Hy. Dpt., St. Paul, cancelled bids to have been opened Oct. 14 S.P. 6222-20 (TH 61-1) 1 mi. at White Bear Lake, CD 9/28.

Minn., St. Paul—City, J. J. McDevitt, purch. agt., 253 City Hall, Sept. 27, grading, revetment, improved approach roadways and bridge approach on Navy Island and southerly bank, Mississippi River, from W. W. Magee Co., 1397 Laurel Ave., **$124,000.** G. M. Shepard, city engr.

New Jersey—State Hy. Dpt., Trenton, Oct. 6, 1.928 mi. Rt. 25, Sect. 3, West Bound Roadway from Bordentown to Yardville, Bordentown Twp., Burlington Co. and paving 2.722 mi. Rt. 4, Parkways, Sects. 1F and 2D, from Rt. 35 at New Brunswick Ave. to Fort Reading R. R., Woodbridge Twp., Middlesex Co., from Union Paving Co., 1227 N. Broad St., Phila., Pa., **$293,232** and **$794,992** respectively. CD 9/19.

Oklahoma—State Hy. Dpt., Oklahoma City, Zone 5, rejected bids Oct. 4, stabil. base, double bit. surf. course 1.255 mi. Hy. 23 south and west of Cushenberlie, Osage Co. L. B. **$78,977.** Est. $71,925. CD 9/28.

Oklahoma—State Hy. Dpt., Oklahoma City, Zone 5, cancelled bids to have been opened Oct. 4, because of right of way, traffic bound surf. course 9.787 mi. and 4 concrete, steel bridges, U. S. 70, Cotton Co., **$202,246;** traffic bound surf. 7.172 mi. and 4 concrete, steel bridges, farm-to-market road at Frederick, Tillman Co. **$140,623.** CD 9/28.

CONTRACTS AWARDED

Calif., Sacramento—City, City Hall, wid'n. Broadway from 16 Sts. to McGillivray Constr. Co., Box 873, **$156,925.** Bids 9/30.

Fla., Tampa—City, Tampa, street imprvs., Contr. 1, to Cone Bros. Contg. Co., Caeser Ave. and Cumberland St., **$156,155;** Contr. 2, to Logan Constr. Co., 102 N. 13 St., **$82,500.** CD 8/19/46.

Iowa—State Hy. Dpt., Ames, 0.886 mi. S.P. SN 825, Wright Co., to Hallett Constr. Co., Crosby, Minn. **$53,411.** Bids 9/13. (**Correction** -status) CD 9/20, under LB.

Ia., Eagle Grove—City, City Hall, paving, to Hallett Constr. Co., Crosby, Minn., **$53,411.**

Kan., Salina—City, City Hall, street imprvs., to H. J. Taylor Constr. Co., **$99,154.** Bids 9/26. H. F. Harper, city engr.

Kan., Topeka—City, City Hall, paving 15 blocks, to Douglas Constr. Co., 510 E. 15 St., **$145,551.** W. E. Baldry, city engr.

Kentucky—State Hy. Dpt., Frankfort, traffic bound limestone 7.026 Nelsonville Rd., RS 90-465, Nelson Co., to Marlowe Constr. Co. Inc., Lexington, **$84,358.** Bids 9/23. CD 10/3, under LB.

Md., Baltimore—Mayor & City Council, City Hall, Sept. 7, b. conc. Hy. Contr. 1016, to American Paving & Contr. Co., 2525 Loch Raven Rd., **$121,604.** CD 8/30.

Missouri—Bureau P. Rds., General Services Admin., c/o Distr. Ranger, U. S. Forest Service, Willow Springs, Aug. 5, grav. surf. 1.347 mi. Missouri Forest Hy. Proj. 33-B, Part 2, Douglas Co., to Allcorn & Koger Constr. Co., Van Buren, **$31,862.** CD 7/20.

✦**Montana**—Bureau P. Rds., General Services Admin., P. O. Bldg., Missoula, clearing, grubbing, grading, draining 5.0176 mi. West Fork Bitterroot Rd., Proj. 91-B, Ravalli Co., to Clifton & Applegate, Box 1473, Spokane, Wash., **$152,027.** Bids 10/6. CD 9/26.

Nevada—State Hy. Dpt., Carson City, 5.987 mi. highway imprv. 0.019 mi. redeck bridge from 1 mi. west of Caliente to junction of Spring and Front Sts., Lincoln Co. to Sauer & Margrave, 151 Kietzke Lane, Reno, **$73,106***** imprv. 5.242 mi. by, from 3 mi. south to 2½ mi. north of Pioche, Lincoln Co., to Phoenix Constr. Co., Box 906, Bakersfield, Calif., **$181,-529***imprv. 13.163 mi. Hy. from 22 mi. south to 9 mi. south of Gerlach, Washoe Co., to Dodge Constr. Co., N. Maine St., Fallon, **$147,431.** Grand total $402,066. Bids 10/4. CD 9/22.

N. C., Raleigh—City, Roy Braden, mgr., Raleigh, street imprvs., to F. D. Cline Constr. Co., Box 349, **$60,297.** Bids 9/29.

Oklahoma—State Hy. Dpt., Oklahoma City, Zone 5, grading, drainage, minor structures and one bridge 4.92 mi. U. S. 59 south of Meavener, Leflore Co., to Oklahoma Constr. Co., 1617 N. Broadway, Oklahoma City, Zone 5, **$76,108.** Est. $90,385. Bids 10/4, awarded 10/5. CD 9/28.

Oklahoma—State Hy. Dpt., Oklahoma City, Zone 5, c. conc. 7.96 mi. U. S. 76 south of Coalgate, Coal Co. to Jack Briscoe, Stillwater, **$406,947** est. $399,519***b. conc. 1.752 mi. U. S. 66 urban connection at Oklahoma City, Oklahoma Co., to W. E. Logan & Sons, Barnes Bldg., Muskogee, **$508,861** est. $558,548 ***stabil. base, double bit. surf. 3.839 mi. farm-to-market road at Kowa, Pittsburg Co., to Ryan Richards Co., 1401 N. W. 63 St., Oklahoma City, Zone 4, **$57,454** est. $61,703. Grand total $973,262. Bids 10/4 awarded 10/5. CD 9/20 and 9/28.

South Dakota—State Hy. Comn., Pierre, base course 7.23 mi. F 95 (19), Faulk Co., to W. E. Bartholow & Son Constr. Co., Huron, **$72,893***base and bit. surf. 0.79 mi. S 220 (1), Walworth Co., to J. L. Healy Constr. Co., 301 Western Surity Bldg., Sioux Falls, **$62,307 ***grading 15.71 mi. FAS 47 A (1), Shannon Co., to Harris Constr. Co., Faulkton, **$85,089.** Grand total $220,289. Bids 9/27. CD 9/15.

Tex., Beaumont—City, City Hall, asph. paving Harrison Ave. and 16 St. to Trotti & Thomson, 2940 Crockett St., **$73,000.** CD 2/11.

Tex., Denton—City, street imprvs. and asph. paving, force account, **$110,000.** Joe E. Beard, 545 Nacol Bldg., Wichita Falls, engr. CD 10/24/46.

Washington — State Hy. Dpt., Olympia, ballasting, modified light bit. 6.12 mi. Mabton-Bickleton Rd., F.A.S. N. S-0396 (2), Yakima Co., to C & E Constr. Co. Yakima, **$97,-** C. D 9/27***surf. 4.357 mi. Primary State Hy. 3, Grande Ronde River South, Asotin Co., to J. A. Bryant, Lewiston, Idaho, **$50,228***** clearing, grading, surf., stockpiling 6.722 mi. Primary State Hy. 5, Forest Boundary to junction with Primary State Hy. 5, Yakima Co., to R. Weist, Yakima **$88,184***clearing, grading, draining, surf., stockpiling 7.495 mi. Primary State Hy. 12, Pasco Jct. Rd. to Pe Ell and Pe Ell to Pluvius, Lewis and Pacific Counties, to Pacific Sand & Gravel Co., Centralia, **$319,703.** Grand total $544,859. Bids 10/7. CD 9/29.

EARTHWORK, WATERWAYS

BIDS ASKED

October 25

✦**Colorado and Kansas**—Bureau Reclamation, Dpt. Interior, Bldg. 14, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars St. Francis, Kan. and Burlington, Colo., fixed-wheel gate, for Bonny Dam, St. Francis Unit, Missouri River Basin Proj., Spec. 2802. L. N. McClellan, ch. engr.

✦**Illinois**—U. S. Eng., Chicago Distr., 520 Merchandise Mart, Chicago 54, reconstructing of East Revetment, Waukegan Harbor, CIV-ENG-11-032-050-7.

✦**Missouri**—U. S. Eng., 1709 Jackson St., Omaha, 2, Neb., emergency repair to levees along High Creek approx. 3 mi. northeast of Watson, Serial No. CIVENG 25-066-50-76.

October 26

✦**Louisiana**—U. S. Eng., foot Prytania St., New Orleans, construction and sinking approx. 2,550 sq. yd. framed willow mattress revetment on Mississippi River, Serial No. CIVENG 16-047-50-94.

B. C., North Vancouver—J. M. Somerville, secy. Dpt. P. Wks., Hunter Bldg., Ottawa,

Ont., dredging in harbor, Approx. $175,000. R. Blais, c/o owner, engr.

N. S., Little Harbor—J. M. Somerville, secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater exten. Approx. $30,000. R. Blais, c/o owner, engr.

October 27

†**N. Y., Elmira**—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., Lehigh Valley R. R. Flood Barrier, Diven Creek, Serial No. CIVENG-18-020-50-8. CD 9/26.

†**North Dakota**—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul 1, Minn., swimming beaches at Home Reservoir, Park River, Serial No. CIVENG-21-018-50-14. CD 10/4.

About October 28

†**Illinois**—U. S. Eng., 826 U. S. Court House & Custom House, 1114 Market St., St. Louis, 1, Mo., floodwalls and closure structures, Wood River Drainage and Levee Dists. Proj., Item 1-H, Madison Co., on north and south banks of east fork of Wood River, vicinity East Alton.

About November 1

†**Arkansas**—U. S. Eng., P. O. Box 97, Memphis, 1 Tenn., placing approx. 200,000 cu. yd. earthwork Mud Slough Drainage Dist., Turnover levee and ditch enlargement, Stations 43 plus 28 and 45 plus 24, Levee Item No. R-184-SFR, Schug, Green Co., CIVENG-40-041-50-50.

On or About November 1

†**Montana**—U. S. Eng., Fort Peck, open shelter bldg., public use facilities, Devils Creek Site, Fort Peck Reservoir; open shelter bldg., public use facilities Bear Creek Site, Fort Peck Reservoir. Plans deposit $10 each.

November 1

†**New Jersey**—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., maintenance dredging 26,000 cu. yd. channel of Manasquan River, Inv. No. CIVENG-36-109-50-21.

†**Virginia**—U. S. Eng., foot of Front St., Norfolk, clearing Parcel A, Buggs Island Reservoir Proj., Roanoke River, Mecklenburg Co., Serial No. CIVENG-44-110-50-20. CD 8/29.

†**West Virginia**—U. S. Eng., 925 New Federal Bldg., Pittsburgh, Pa., tainter gate operating machinery Morgantown Lock and Dam, Monongahela River, Serial No. CIVENG-36-058-50-44.

†**Oregon**—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., design, fabrication, assembly, wiring and testing metal-enclosed unit substation and power center for McNary lock and dam.

November 3

†**Nebraska**—U. S. Eng., 1709 Jackson St., Omaha, Zone 2, underseepage control facilities for Agricultural Levees Unit R-562 in vicinity of Peru, Serial No. CIVENG-25-066-50-71. CD 10/3.

†**North Carolina, Virginia and Florida**—U. S. Eng., 308 Customhouse, Wilmington, N. C., repairing fender sys. at Core Creek Bridge, N. C., Atlantic Intracoastal Waterway between Norfolk, Va., and the St. Johns River, Fla. Serial No. CIVENG-31-075-50-11. Extended date. CD 9/22.

†**Washington**—U. S. Eng., Pittock Block, Portland 5, Ore., levee imprv. in Wahkiakum Diking Imprvt. Dist. 4, along levee on south side of district, 1 mi. southeast of Skamokawa, Wahkiakum Co., CIVENG-35-026-50-126.

November 4

†**Mississippi**—U. S. Eng., P. O. Box 1169, Mobile, Ala., removal, disposal material in Gulfport Anchorage Basin and Mississippi Sound Channel, approx. 90 mi. west of Mobile Harbor, Ala., and 78 mi. east of New Orleans, La., Serial No. CIVENG 01-076-50-24.

†**Oklahoma**—U S. Eng., P. O. Box 61, Tulsa, Zone 2, earthwork and bank protection at Poteau River Dam, Le Flore Co., Inv. No. CIVENG-34-066-50-43. $100,000.

About November 7

†**Colorado**—U. S. Eng., P. O. Box 1538, Albuquerque, N. M., embankment erosion control, Templeton Gap Floodway, Colorado Springs, CIVENG-29-005-50-4.

About November 8

†**Florida**—U. S. Eng., P. O. Box 4970, Jacksonville, Constr. Levee, L-35A, 6 mi. section Central and Southern Florida Flood Control Proj., Levee about 15 mi. west of Ft. Lauderdale, Inv. No. CIVENG-08-123-50-18.

†**North Dakota**—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul 1, Minn., reservoir clearing Stage No. 2 for Baldhill Reservoir, Sheyenne River, approx. 17 to 26 mi. northwest of Valley City. Plans deposit $5. CD 5/25/44.

On or About November 8

†**South Carolina**—U. S. Eng., P. O. Box 905, Charleston, maintenance dredging Sampit River and Eastern Channel, Georgetown Harbor, CIVENG-38-081-50-7. CD 9/21.

November 8

†**Washington** — Bureau Reclamation, Dpt. Interior, Coulee Dam, river channel imprvs., Grand Coulee Dam, Columbia Basin Proj., Spec. 2808. L. N. Mc Clellan, Bldg. 71-A,

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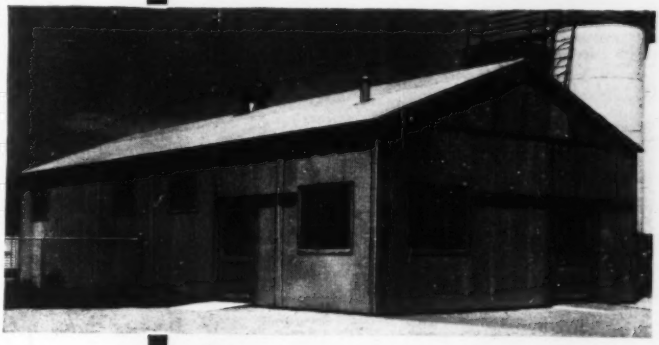

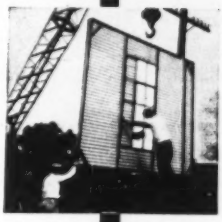

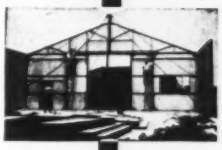

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November 9

†Arizona — Bureau Reclamation, Dpt. Interior, Yuma, Wellton-Mohawk Pumping Plants 1, 2 and 3, Wellton-Mohawk Div., Gila Project, 2804. L. N. McClellan, ch. engr.

†Wash., Arlington—Pub. Wks. Officer, 13th Naval Dist., 1611 W. Wheeler St., Seattle, clearing 250-acre site of naval communication station at Jim Creek. Spec. 2810S, for Yards & Docks Annex, Navy Dpt., Arlington, Va. Plans deposit $12. Extended date. CD 9/8.

About November 15

†New York—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., channel relocation and clearing, Chenango River at Norwich. Serial No. CIVENG-18-020-50-9.

On or About November 16

†South Carolina—U. S. Eng., P.O. Box 905, Charleston, maintenance dredging, approx. 700,000 cu. yds. place measurement, Sampit River and Eastern Channel, Georgetown Harbor. CIVENG-38-081-50-7.

November 18

†Oregon—U. S. Eng., Pittock Block, Portland, Zone 5, training jetty, mouth of Umpqua River, Douglas Co., CIVENG-35-026-50-124.

November 22

†Oregon—U. S. Eng., Pittock Block, Portland, Zone 5, clearing portions Minnow Creek area in Lookout Point Dam reservoir, incl. salvaging merchantable timber and disposal spoils of clearing operations, 22 mi. east of Eugene, Lane Co., CIVENG-35-026-50-125.

LOW BIDDERS

†Arkansas—U. S. Eng., 300 Broadway, Little Rock, rejected bids Sept. 15, emergency levee repair, White River Watershed Little Red River, CIVENG-03-050-50-16. CD 8/30.

†California—U. S. Eng., Wright Bldg., Sacramento, Oct. 6, levee setback and bank protection along Miner Slough at north end of Ryer Island, Sacramento Co., from Parish Bros., Box 6 Benicia, **$35,099.**

Fla., Miami Beach—Dade Co., Miami Beach, dredging and fill work at Haulover Beach, from Arundel Corp., 343 S.W. North River Dr., Miami, **$254,702.**

†Louisiana—U. S. Eng., foot Prytania St., New Orleans, Oct. 4, approx. 1,540,000 cu. yd. semi-compacted earthwork, Red River Levee, Rapides Parish, Serial No. CIVENG 16-047-50-68 from H. B. Blanks Constr. Co., P. O. Box 37, Vidalia, **$258,874.** CD 9/21.

†Louisiana—U. S. Eng., foot Prytania St., New Orleans, Oct. 4, approx. 380,000 cu. yd. semi-compacted earthwork removal approx. 1,300 cu. yd. gravel roadway at East Atchafalaya Basin Protection Levee; Iberville Parish, from Walter P. Villere, 1100 S. Claiborne Ave., New Orleans, **$190,385.**

†Mississippi—U. S. Eng., P. O. Box 97, Memphis, Tenn., rejected bids Sept. 27, triangular frame retards in Mississippi River at Burke landing, CIVENG-40-041-50-33. CD 10/4.

CONTRACTS AWARDED

†Arkansas and Mississippi—U. S. Eng., P.O. Box 97, Memphis, 1, Tenn., levee work on Mississippi River, at Helena and Westover, Ark. and Burke Landing, Miss., to Markham & Brown and L. L. Sanders, 4308 Emerson St., Dallas, Tex., **$433,640.** CD 9/2

●†California—U. S. Eng., 751 S. Figueroa St., Los Angeles, Oct. 4, river channel and appurtenances Tujunga Wash Imprvt., Los Angeles River to Hansen Dam, Magnolia Blvd. to Van Owen St., Los Angeles Co. Drainage Area, CIVENG-04-353-50-7, from Bressi & Brevander Constr. Co., 6950 Tujunga St., Los Angeles, **$1,854,624.** Est. $2,500,000. CD 9/22.

†Idaho—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., restoration flood control works, Kootenai Flats Area, to F. R. Hewett, Parkwater, Wash., **$141,256.** Est. $156,412.

†Kentucky—U. S. Eng., P. O. Box 97, Memphis, Zone 1, Tenn., Sept. 15, triangular frame retards, left bank Mississippi River, Island 9, Fulton Co., Serial No. CIVENG-40-041-50-31, to Hough-Cowsur & Co., Inc., 320 N. 4 St., St. Louis, Mo., approx. **$221,840.** CD 9/7.

†New York—U. S. Eng., 120 Wall St., New York, Zone 5, removing all material except ledge rock from Great South Bay, to Gibson & Cushman, Inc., 38 Homan Ave., Bay Shore, **$29,565.** Bids 9/29. CD 9/19.

Oklahoma—State Hy. Dpt., Oklahoma City, state bridge and bank repair contract U. S. 62, McClain Co., to Tex Baughman, 4001 N. W. 9 St., Oklahoma City, Zone 8, **$67,576.** Est. $80,000. Bids 10/4, awarded 10/5. CD 9/28.

†Oregon—U. S. Eng., Pittock Block, Portland, Zone 5, dredging upper 10½ mi. main ship channel in Coos Bay, to 30 ft. depth, 300 ft. wide, incl. anchorage basin and 2 turning basins to same depth, Coos Co., CIVENG-35-026-50-86, to Pacific Dredging Co., 14409 S. Paramount Blvd., Paramount, Calif., **$870,876.** Est. $922,127. Bids 10/4, awarded 10/7. CD 9/14.

Tex., Beaumont—Jefferson County Drainage Dist. 6, Beaumont, Sept. 30, drainage imprvs., 23 St., East Dr. and Caldwell subdivision, from Farnsworth & Chambers, Inc., Box 74, Houston, and East Tex. Constr. Co., 165 4 St., **$97,294.** L. V. Norris, Beaumont, proj. engr. CD 5/31/46.

Tex., Houston—Harris County Agricultural Conservation Dist., Courthouse Bldg., drilling water supply wells, terracing, earthen water tanks, clearing, grading, drainage. Own forces. **$175,000.** CD 1/6.

AIRPORTS AND AIRBASES

BIDS ASKED

October 26

†Ala., Mobile — SPRINKLER SYSTEM FACILITIES—U. S. Eng., 2301 Grant St., Mobile, automatic sprinkler system facilities at Brookley Air Force Base, Inv. No. Eng-01-076-50-14.

October 27

●Tex., Fort Worth—AIRPORT—City, W. O. Jones, mgr., Fort Worth, Contr. 2, paving, etc. at Greater Fort Worth International Airport near Arlington, **$2,170,000.** Plans deposit $25. Wyatt C. Hedrick, 1005 First Natl. Bank Bldg., engr. and archt. CD 9/27.

December 1

†Bermuda—BUILDING—U. S. Eng., 120 Wall St., New York 5, New York, U. S. A., converting Bldg. 200 to Station Hospital and construction building to house water evaporation unit at Kindley Air Force Base, No. Eng.-30-075-50-7. $200,000-$300,000. Plans deposit $15.

LOW BIDDERS

†N. Y., Niagara Falls — AIRPORT — Pub. Wks., Office, Third Naval Dist., 50 Church St., New York, Zone 7, rejected bids Sept. 28, resealing joints in concrete apron, Naval Air Station, NOY-19195 (SF), Spec. No. 23205. Will not re-advertise. CD 9/21.

†N. Y., Niagara Falls—HANGAR, etc-Pub. Wks. Office, Third Naval Dist., Hudson Terminal Bldg., 50 Church St., New York, Zone 7, rejected bids Sept. 29, repairing exterior of hangar, Spec. No. 22778; parachute drying tower, Spec. 22999, both at Naval Air Station, Project cancelled. CD 9/21.

Tex., Borger—AIRPORT—Hutchinson Co., Comrs. Court, Stinnett, Oct. 5, county airport, Unit 1, grading, paving, lighting from Roy Smith, P.O. Box 1030, **$298,721.** CD 9/27.

CONTRACTS AWARDED

Minn., Minneapolis—TAXIWAY—Minneapolis-St. Paul Metropolitan Airports Comn., R. Aldrich, exec. dir., 2429 University Ave., St. Paul, part concrete paving, S-W taxiway, Wold-Chamberlain Field, to S. J. Groves & Sons Co., 510 Wesley Temple Bldg., **$93,874.** Bids 9/20. Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, engrs. CD 3/24/48.

●Pa., Pittsburgh — TERMINAL — Comrs. Allegheny Co., County Bldg., interior completion terminal bldg., at Greater Pittsburgh Airport Moon Twp., near here, to Dick Constr. Co., 2532 Library Rd., **$1,789,000.** Est. $2,500,000. Bids 9/27. CD 9/22.

†Wash., Walla Walla—WATER SUPPLY, etc.—U. S. Eng., 19 E. Poplar St., water supply sys. extens., Serial CIVENG 45-165-50-27, to Thornburn & Logozo, 4608 36 Ave. S. W., Seattle, **$30,637,** est. $61,639. Bids 10/4. CD 9/7.

W. Va., Wheeling—AIRPORT TRAFFIC CONTROL TOWER—Bd. Comrs. Ohio Co., County Bldg., Wheeling, 2 story, 17x37 ft., brick, insulated structural glass, elevated 3 storys on steel frame airport & traffic control tower, to Consolidated Eng. Co., 17 and Warren Sts., **$72,899.** Est. $75,000. Frederick Faris, 1117 Chapline St., archts. CD 1/26/45.

AMERICANS ABROAD

N. W. I., Aruba—Lago Oil & Transport Co., c/o Robert Law Weed, archt., Dupont Bldg., Miami, Fla., U. S. A., soon lets contract bids 200 bed hospital.

PUBLIC BUILDINGS

BIDS ASKED

October 24

N. S., Halifax — NURSES HOME — Hon. M. D. Rawding, minister, Dpt. Hys. & P. Wks., Halifax, nurses home, Victoria General Hospital, Approx. $300,000. C. St. J. Wilson, Ray Bldg., archt.

Ont., Toronto — MUNICIPAL OFFICES — Shore & Moffat, archts., 79 Queen St. E., 2 story, part bsmnt., 40x235 ft. steel, brick, stone municipal offices, Eglinton Ave. W., west of Tretheway Dr., for York Twp., H. A. Hall, clk., 40 Jarvis St., Toronto. Approx. $600,000. CD 8/29.

N. Y., New York—HOUSING—New York City Housing Auth., 63 Park Row, Zone 7, general contract; heating, plumbing, electrical work for following bldgs., in Group 2 of Stephen Foster Houses Rehabilitation Proj. No. NYS-30, Manhattan Boro, 2166 5 Ave., 2105 8 Ave.; 140 W. 129 St.; 86 W. 134 St.; 88 W. 134 St., 90 W. 134 St. Plans deposit $25.

October 25

Ill., Arlington Heights—SCHOOL—Arlington Heights School Dist., 214 Arlington Heights, 2 story, brick, rein.-con steel, stone high school. Carl M. Teutsch, 1105 Lawrence St., Chicago, archt.

Minn., Moorhead—SCHOOL—Bd. Educ., S. Stever, clk., 2 story, bsmnt., 155x224 ft. brick, concrete school, Approx. $500,000. Plans deposit $25. CD 3/17.

N. Y., Brooklyn—Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. Exten., Zone 1, general contract, plumbing and drainage, heating and ventilating, electrical and lighting fixtures for P. S. 32, east side of Hoyt St. between Union and President Sts. Plans deposit $28 general; $8, plumbing and drainage and heating and ventilating; $11, electrical and lighting fixtures. CD 8/13/45.

Ont., Woodstock — SCHOOL — J. A. Bainsecy, Bd. Educ., Woodstock, 1 story, 145x193 ft., brick, concrete block, steel school, Approx. $250,000. Plans deposit $25. S. B. Coon & Sons, St. Thomas St., Toronto, archts.

October 26

Colo., Denver — SCHOOL — School Dist. 1, City and Denver Co., 414 14 St., Denver, 1 story Stephen Knight School. Approx. $250,000. Plans deposit $25. T. H. Buell & Co., 730 14 St., Denver, archts. and engrs. CD 9/29.

Kan., Leavenworth—SCHOOL—P. Schools of Leavenworth, Bd. Educ., Hugh C. Bryan, supt., Times Bldg., concrete, brick Lincoln School. Thomas W. Williamson & Co., National Bank of Topeka Bldg., Topeka, archts. CD 9/16.

●Mass., Quincy—HOUSING—City of Quincy Housing Auth., City Hall Annex, 2 story Housing Project No. 200-1, 400 units, Germantown-Sailor's Snug Harbor. Approx. $4,000,000. Plans deposit $100. E. J. Shields, 1245 Hancock St., archt. Hubbard-Lawless-Blakeley, 177 State St., Boston, engrs. CD 8/20.

Mass., Woburn — HOUSING — City of Woburn Housing Auth., City Hall, P. W. Linscott, chn., 2 story, bsmnt., row houses, north Woburn Section, Way Walsh Land off Webster and Poole Sts. Approx. $600,000. Plans deposit $100. A. G. Manasellan & Assoc., 30 Huntington Ave., Boston, archts.

N. Y., Brooklyn—SCHOOL—Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. Exten., Zone 1, general contract, P. S. 12, Adelphi and Willoughby Sts., Clermont and DeKalb Aves. Plans deposit $22. CD 9/26/45.

October 27

Ala., Florence—SCHOOL—City, school, Turner & Northington, Florence, archts.

Md., Mt. Savage—SCHOOL—Bd. Educ. Allegany Co., Cumberland, 2 story, brick, steel, concrete school, $255,000. Plans deposit $60. S. Russ Minter, 307 S. Center St., Cumberland, archt. CD 1/22/46.

Ont., Quarries — LABORATORY — Purchasing Agent, National Research Council, Sussex St., Ottawa, laboratory. Plans deposit $25.

October 28

Ark., Warren—HOSPITAL—At office C. W. Hickman, Judge Bradley Co., 1 story Bradley Co. Memorial Hospital, $354,000. Trapp & Clippard, pyramid Bldg., Little Rock, archts. CD 9/13.

Calif., Santa Rosa—SCHOOL—Santa Rosa City School Dist., Santa Rosa, remodeling Fremont Grade School to form new Junior High School Plant, $456,000. Plans deposit $50. J. Clarence Felciano, 4010 Montecito Ave., archt. CD 9/12.

●†D. C., Wash. — WHITE HOUSE—Pub. Bldgs. Admin., F St. between 18 and 19 Sts., N. W. reconstructing White House, $5,400,000. Lorenzo S. Winslow, of White House, archt. CD 8/5.

October 31

Tex., Highland Park—SCHOOLS—Highland Park Independent School Dist., Hyer School, $250,000; Junior High School, $350,000, Mark Lemmon, 12101½ Main St., Dallas, archt.; Bradfield School, $275,000, Robert D. Goodwin, 8801 Lemmon St., Dallas, archt.; University Park School, $250,000, Robert M. Patton, 2715 Guillot St., Dallas, archt.; high school, $300,000, Broad & Nelson, Burt Bldg., Dallas, archts. CD 5/31.

Late in October

●Pa., Phila.—YOUTH STUDIES CENTER—Phila. City Controller & Bd. Mgrs. House of Detention, City Hall, youth studies center, $2,000,000. Carroll, Grisdale & Van Alan, 1616 Walnut St., archts.

November 1

Ark., Wynne — HIGH SCHOOL — Wynne School Dist. 9, Wynne, high school, $250,000. Plans deposit $50. Morris Smith, Rector Bldg., Little Rock, archt. CD 5/4.

Calif., Los Angeles—GARAGE, etc.—Los Angeles Co., 501 Hall of Records, Altadena Maintenance Yard, Spec. 934, garage, office, service bldgs., $88,000. Nelson P. Rice, 354 S. Spring St., archt.

Calif., Sacramento—STATE CAPITOL ANNEX—State Div. Architecture, P. Wks. Bldg., **(A)** work complete **(B)** separated parts of work (1) general (2) heating, ventilating and air-conditioning (3) plumbing (4) electrical work (5) elevators and dumbwaiters 6 story, bsmnt., structural steel, rein.-con. State Capitol Annex bldg. Plans deposit $200. Anson Boyd, Sacramento, state archt. CD 10/11/45.

Ga., Atlanta—SCHOOL—Fulton Co., Atlanta, West Side High School. Poundstone, Ayers & Godwin, Palmer Bldg., archts.

Fla., Miami — HOME—Dade Co., Miami, juvenile detention home. Bids 3/22 rejected. Robert F. Smith, 201 Shoreland Bldg., archt. CD 3/30 under LR.

(Continued on page 74)

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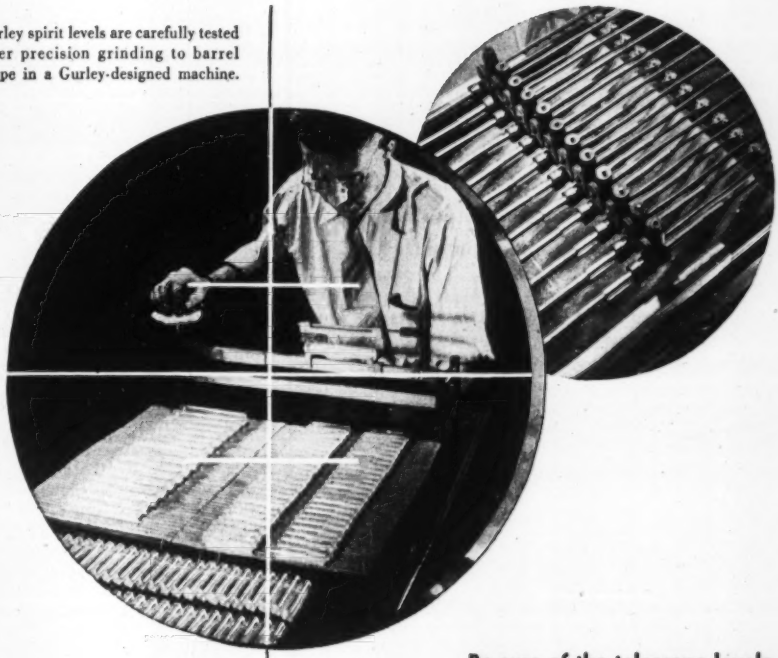

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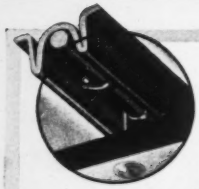

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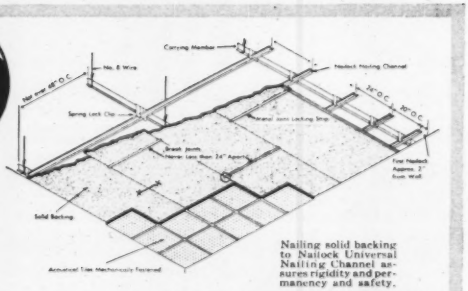

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(Continued from page 72)

Kan., Liberal—SCHOOLS—Bd. Educ., School Dist. 2, Seward Co., Liberal, N. B. Mahurin, clk., 1 story, concrete, masonry steel Industrial Arts Bldg., 1 and 3 story bsmnt., masonry concrete, concrete, steel high school annex. Plans deposit $25 each. Extended date. Mann & Co., 201 E. First St., Hutchinson, archts. CD 8/25.

●**Miss., Laurel** — HOSPITAL — Jones Co., Laurel, hospital. $1,350,000. Extended date. Charles H. McCauley, Jackson Bldg., Birmingham, Ala., archt. CD 9/20.

N. C., North Wilkesboro — HOSPITAL — Wilkes General Hospital, North Wilkesboro, 100-bed general hospital, Proj. NC-33. Plans deposit $50 general, $25 others. J. N. Pease & Co., 119½ E. 5 St., Charlotte, engrs. and archts. CD 10/22/48.

Ala., Birmingham — SCHOOL—City Bd. Educ., Birmingham, Ullman High School Addn. Plans deposit $25. Warren, Knight & Davis, Protective Life Bldg., archts. CD 8/25/44.

Ind., Butlerville—NURSERY—State of Indiana P. Wks. & Supply Div., W. R. Mybeck, dir., 404 State House, Indianapolis, 2 story, bsmnt., brick, steel, rein.-con. stone nursery bldg., Muscatatuck State Colony, $500,000. McGuire & Shook, 1400-01 Fletcher Trust Bldg., Indianapolis, archts. CD 9/6.

La., Shreveport — YOUTH ACTIVITIES — Louisiana State Fair, W. P. Hirsch, secy., Fair Grounds, Shreveport, parts of Youth Activities Bldg., State Fair Grounds, $400,000. Neild & Somdal, Texas Eastern Bldg., Zone 23, archts.

November 2

N. Y., Albany — HALL — Dpt. Educ., State Education Bldg., Draper Hall addn. $800,000. Plans deposit $30.

●**W. Va., Charleston**—OFFICE—State Dpt. Wks., Charleston, state office, Cass Gilbert, Jr., 342 Madison Ave., New York, N. Y., archt. CD 10/26/45.

Ont., Kingston — WORKSHOP — J. D. McCarthy, secy., Canadian Commercial Corp., 70 Lyon St., Ottawa, engineer workshop, at Royal Military College, Tender No. G-23-K-1-39, Approx. $100,000. CD 1/7.

November 3

Mich., Garden City—HIGH SCHOOL, etc.—Garden City Bd. Educ., high school and gymnasium, $650,000. Plans deposit $20. Warren S. Holmes, 2300 Olds Tower, Lansing, archt.

Ont., Kitchener—AUDITORIUM—C. G. Lhs. city clk., 295x325 ft. 6,200 seating stone-faced masonry memorial auditorium, Jenkins & Wright, 200 Zellar Bldg., archts.

November 7

Calif., Beaumont — HOSPITAL — San Gorgonio Pass Memorial Dist., 111 San Gorgonio St., Banning, 1 story, rein.-con. hospital, $450,000. Clark & Frey, 879 N Palm Canyon Dr., Palm Springs, archts.

Calif., Hollister — JAIL — San Benito Co., Courthouse, 2 story, bsmnt., rein.-con. jail. Approx. $250,000. Plans deposit $25. E. Geoffrey Bangs, 604 Market St., San Francisco, archt.

●**Ore., Salem**—OFFICE—State Hy. Comm., State Office Bldg., Salem, state hy. comm. office bldg. $1,600,000. Whitehouse Church, Newberry & Rohr Builders Exchange Bldg., Portland archts. Bids 9/20 rejected. L. B. **$1,934,264.** CD 9/22, under LB.

November 8

Ind., Gary—SCHOOL—Bd. School Trustees, C. D. Lutz, supt. Schools, 524 Garfield St., 2 story, bsmnt., brick, stone, rein.-con. Pulaski School, 18 and Georgia Sts. $400,000. Raymond S. Kastendieck, 673 Broadway, archt. CD 5/24.

Tex., Dallas — SCHOOL — Dallas Independent School Dist., Akard and Royal Sts., 40,000 sq. ft. Preston Hollow School. $450,000. Plans deposit $50. Goodwin, Cavitt & Lane, 481 Lemmon St., archts. Zumwalt & Vinther, Mercantile Security Bldg., engrs. CD 2/4/49.

November 9

Colo., Denver—SCHOOL—School Dist. 1, 414 14 St., Denver, 2 story, Gilpin School, 29 and Stout Sts., Approx. $250,000. Smith, Hegner & Moore, Colorado Bldg., Denver, archts. and engrs. CD 3/4.

About November 10

✦**Montana**—U. S. Eng., Fort Peck, installing electrical light and power cables in service tunnel and electrical ducts in Shaft Area; install 100 hp air compressor, air tank auxiliaries and associated electrical control equip. Main Control Shaft Bldg. 1; install underground and overhead signal and communication cables between Shaft Area and Power House; install gate position indicating equip. and lake water level recording sys., in Shaft Substation, Main and Emergency Control Shaft Bldgs., and Power House, Fort Peck, Serial No. CIVENG 24-016-50-16.

✦**N. M., Las Cruces** — HEADQUARTERS — U. S. Eng., P.O. Box 1538, Albuquerque, Technical Headquarters Bldg. P-93D, White Sands Proving Ground, Serial No. ENG-29-005-50-16.

Calif., Chico—COLLEGE—State Div. Architecture, P. Wks. Bldg., Sacramento, general contract, plumbing, heating and air-conditioning and electrical work, 2 story 38,000 sq.

ft., rein.-con. music, speech and science bldg. at Chico State College. Plans deposit $25. Anson Boyd, Sacramento, state archt.

†**Wyoming** — CONTROL BOARD, etc. — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Emery, Bonneville, Shoshoni, Thermopolis, Wyo., control board, C1A, annunciator relay cabinet, C2A, transmitter-receiver set, carrier-frequency cable, alternating-current distribution board, D1A, power transformers, control and distribution board B2A, motor-generator-type battery charges for Boysen Power Plant; transmitter-receiver set for conventional distance-type relaying for Thermopolis substation, Boysen Division, Transmission Division, Missouri River Basin Proj., Spec. 2782. L. N. McClellan, ch. engr.

About November 15

N. C., Greensboro—DORMITORIES—A. & T. College, c/o McMinn & Norfleet and Albert C. Woodroof, Assoc. Archts., Greensboro, 320,000 cu. ft. women's dormitory, 1,800,000 cu. ft. men's dormitory. Newcombe & Boyd, Trust Co. of Georgia Bldg., Atlanta, Ga., engrs. CD 9/29.

November 15

●**Ore., Eugene**—PLANTS—State Bd. Higher Educ., University of Oregon, Eugene, combination steam heating and electrical generation plants. $1,000,000. J. Donald Kroeker, Failing Bldg., Portland, engr.

●†**Pa., Pittsburgh** — HOSPITAL — U. S. Engr., 925 New Federal Bldg., Zone 19, buildings, passageways and utilities on site of Veterans Admin. Neuropsychiatric Hospital, CIVENG-36-058-50-18., for Veterans Admin., Vermont Ave. between H and I Sts. N.W. Wash. 25, D. C. $12,000,000-$16,000,000. CD 9/2.

After November 15

●**Minn., Minneapolis** — HOSPITAL—Veterans Admin., Vermont Ave. between H and I Sts., Wash. 25, D. C., 8 story Veterans Hospital addn. $7,000,000. CD 8/2/47.

November 18

Tex., San Antonio — ADMINISTRATION — San Antonio Junior College, 423 S. Alamo St., 2 story masonry, administration bldg., concrete pier and beam fdn. $517,000. Phelps & DeWees & Simmons, 1501 Majestic Bldg., archts. CD 8/17.

November 29

●**Ala., Mobile**—HOSPITAL—Mobile Infirmary Assn., Inc., c/o Platt Roberts & Co., archts., Merchants Bank Bldg., hospital. Approx. $1,000,000. Extended date. CD 9/27.

After November

●†**O., Cincinnati** — HOSPITAL — Veterans Admin., Vermont Ave. between H and I Sts. N. W. Wash. D. C., 11 story, bsmnt., 500 bed hospital. $7,500,000. CD 4/9/48.

In December

Ia., Sioux Center—HOSPITAL—Sioux Center Community Hospital Assn., Sioux Center, 2 story, 40x160 ft., rein.-con. steel, stone hospital, air-conditioning. Approx. $300,000. William Beuttler, 405 Insurance Exchange Bldg., Sioux City, archt.

December 1

†**Montana** — UNITY — POWER — FACTOR, etc. — Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Louisville, unity-power-factor, alternating-current generators, main exciters, pilot exciters, thrust bearings and guide bearings, for Canyon Ferry Power Unit, Canyon Ferry Unit, Missouri River Basin Project, Spec. 2811. L. N. McClellan, ch. engr.

December 6

●†**Pa., Phila.**—HOSPITAL, etc.—Veterans Admin., Vermont Ave. between H and I Sts. N.W. Wash. 25, D. C., Hospital Bldg. No. 1, approx. 4,513,000 cu. ft., Apartment Bldg. No. 3, approx. 90,000 cu. ft., one Nurses Quarters Bldg. No. 4, approx 56,000 cu. ft., one Attendants Quarters Bldg. No. 5, approx. 35,000 cu. ft., one Station Garage Bldg. No. 6, approx. 62,000 cu. ft., one Laundry Bldg. No. 7, approx. 114,000 cu. ft., one Boiler House Bldg. No. 8, approx. 190,000 cu. ft., all reinforcing, concrete fdns., structural steel frame, brick, with some trim and backed with hollow tile, one Valve House and Underground Fuel Tanks No. 9, approx. 2,000 cu. ft., one Steel Flag Pole No. 10, approx. 75 ft. high., one Wet Salt Storage basins No. 11, approx. 1,000 cu. ft., one Underground Soft Water Reservoir No. 12, approx. 2,000 cu. ft., Spec. 4925, Proj. No. 2871. CD 4/16/48.

About December 8

†**N. M., Albuquerque**—LABORATORY—U. S. Eng., P. O., Box 1538, 3 story, bsmnt., approx. 120,000 sq. ft. A-19 laboratory, Sandia Base, approx. 1 mi. south of U. S. Hy. 66 and 4 mi. southeast of here. Serial No. Eng-291-50-24. Extended date. CD 9/27.

December 14

†**N. C., Durham** — HOSPITAL — U. S. Eng., 308 Customhouse, Wilmington, 500-bed General Medical Veterans Admin. Hospital, for Veterans Admin., Vermont Ave. between H and I Sts. N.W. Wash., 25, D. C. CD 4/16/48.

December 20

●**Fla., Miami**—HOSPITAL—Dade Co., Miami, Jackson Memorial Hospital Addn. $2,500,000. Plans deposit $100. Extended date. Steward & Skinner, 223 S. E. 1 St., archts. CD 9/13.

January 2

●**Wyo., Cheyenne** — OFFICE — State, Acting Gov. A. G. Crane, Capitol Bldg., 4 story, 46,800 sq. ft. state office, $1,000,000. Porter & Bradley, 1009 E. Lincolnway, and Kellogg & Kellogg, 1909 Carey Ave., archts. and engrs. CD 1/13.

January 4

●†**Conn., West Haven** — HOSPITAL — U. S. Eng., Bldg. 21, U. S. Naval Drydock, South Boston, Mass., 9 story GM hospital complete with chapel and assembly hall, 7 story TB hospital with chapel, auditorium, station garage and repair shop, 2 duplex quarters 1 car garage for managers office, etc. on 63 acre site between West Spring St. on south Terrace Ave. on north and exten. along Campbell Ave., Serial No. Eng-10-016-50-5, for Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash., 25, D. C. $14,000,000-$16,000,000. Extended date. CD 8/19, under Conn., New Haven.

About January 15

●†**Mass., Roxbury**—HOSPITAL—U. S. Eng., Army Base, Boston, Zone 10, 14 story 2 penthouse floors veterans general hospital, staff and nurses quarters, boiler plant, garage, etc., South Huntington Ave., and Heath St. $20,000,000. Plans deposit $100. Coolidge, Shepley, Bulfinch & Abbott, 1 Court St., Boston, archts.

On or About January 16

●†**Mass., Boston**—HOSPITAL—U. S. Eng., Bldg. 21, U. S. Naval Drydock, South Boston, veterans administration hospital. Serial No. Eng., 19-016-50-2. CD 8/4/47.

February 7

†**Mass., Boston**—HOSPITAL—U. S. Eng., Bldg., 21, U. S. Naval Drydock, South Boston, veterans admin. hospital, Serial Eng. 19-016-50-2. Extended date. CD 9/15.

LOW BIDDERS

Calif., Agnew—LAUNDRY—State Div. Architecture, P. Wks. Bldg., Sacramento, general contract 1 and 2 Story, 30,000 sq. ft. rein.-con. laundry at Agnews State Hospital, from H. Mayson, 9315 Hooper Ave., Los Angeles, **$205,303.** CD 9/13.

Calif., Willows—HOSPITAL—Glenn Co. Courthouse, Oct. 7, 80 bed rein.-con. hospital, from H. R. Constr. Co., 110 Market St., San Francisco. **(A) $456,237 (B) $171,737.** CD 9/27.

Ga., Atlanta—SHOP—City, Oct. 10, shop for waterworks dpt., from Herrman Constr. Co., 531 Bishop St. N. W., **$329,129.** CD 9/12.

Idaho, Boise—SCHOOL—School Bd., Boise, Lincoln school from Gus C. Jordan, Cassia and Shoshone Sts., **$252,924.** CD 5/6/48.

●**Mass., Lowell**—HOUSING—City of Lowell Housing Auth., City Hall, Oct. 5, Veterans Housing, from Davison Constr. Co., 1306 A Elm St., Manchester, N. H., **$2,422,000.** CD 9/14.

●†**Mass., New Bedford** — WAREHOUSE — P. Bldgs. Admin., West Office Bldg., Boston, rejected bids Aug. 29, altering Federal Supply Warehouse, King St. and Nash Rd. Will readvertise. CD 8/23.

Mass., Westfield—HOUSING—City of Westfield Housing Auth., City Hall, Sept. 29, veterans housing, Southampton Rd., College Hy., from Kay Constr. Co., Clover St., Windsor, **$816,524.** CD 9/30.

●**Mich., Northville**—HOSPITAL—Dpt. Admin., 115 A State Office Bldg., Lansing, 3 story, bsmnt. 45x200 ft. and 38x282 ft. rein.-con. steel brick block State Mental Hospital, from O. W. Burke Co., 1032 Fisher Bldg., Detroit, **$2,362,-000.** mechanical from Duke Avery Co., 414 Marquette Bldg., Detroit, **$761,230.** E. K. Little, 1807 Kales Bldg., Detroit, engr. CD 5/8/46.

N. M., Santa Fe—OFFICE—State, State Capitol Bldg., Oct. 9, Unit 2 state office bldg., from Lembke Constr. Co., Box 144, Albuquerque, **$727,209.** CD 9/13.

N. D., Dickinson—SCHOOL—Bd. Educ., Dickinson, Oct. 1, general contract school, from F. R. Comb Co., 2113 Chicago Ave., Minneapolis, Minn., **$258,454.** CD 9/21.

O., Struthers—GYMNASIUM—City, Memorial gymnasium, from C. C. Kaiser & Sons, 100 E. Rayen Ave., Youngstown, **$524,442.** Est. $750,000. CD 6/24. Under Life.

Ore., Salem—CELL BLOCK—State Bd. Control, Capitol, Salem, Oct. 3, cutting and furnishing steel for 400 unit cell block at state prison from Decatur Iron & Steel Co., Decatur, Ala., **$297,747.** CD 9/9.

Tenn., Memphis — CANCER LABORATORY —University of Tennessee, Knoxville, Oct. 4, Cancer Research Laboratory at Memphis Branch of University of Tennessee, from Building Constructors, 524 Adams St., **$414,-000.** CD 9/16.

Tex., Houston—SCHOOL—Houston Independent School Dist., 1600 Washington St., Oct. 6, 25 classroom masonry school, concrete slab fdn. (Addino-Westfield Rd. area), from T. D. Howe Constr. Co., 3210 White Oak St., **$401,000.** Est. $600,000. CD 9/23.

Tex., Iraan and Sheffield—SCHOOLS—Sheffield Independent School Dist., Sheffield, Oct. 5, masonry schools in towns of Iraan and Sheffield, concrete slab fdns., from Warner Constr. Co., Holcombe-Blaton Bldg., San Angelo, **$599,500.** CD 9/27.

Wis., Chippewa Falls—BOILER PLANT—State Dpt. P. Welfare, Madison, Oct. 5, boiler plant at Northern Colony and Training School, from Stapp Eng. Co., 512 Tabor Bldg., Denver, Colo., **$189,500.** CD 8/24.

●**Que., Montreal**—POST OFFICE—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., office, University and Cathcart Sts. Postal Station B, from A. F. Byers Constr. Co., Ltd., 5674 Western Ave., Approx. **$1,360,000.** CD 9/20.

CONTRACTS AWARDED

Calif., El Centro—JAIL—Bd. Supervs., Imperial Co., 17,000 sq. ft. Imperial County Jail alterations, addns., to L. C. Anderson Co., 3040 Hancock St., San Diego, **$252,340.** Est. $280,000. Bids 10/3. CD 8/12.

†**Colorado**—SUBSTATIONS—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., substations for Windsor and Woodrow and Wray Substations, Colorado-Big Thompson Proj., Spec. R7-70 (Region 7), to General Electric Co., 659 17 St., Denver, **$138,930.** Bids 9/12, awarded 9/30. CD 8/24.

Ind., Bloomington—SCHOOL—Indiana University, Bd. Trustees, Union Bldg., school of education bldg., to Johnson, Drake & Piper, P. O. Box 22, Bloomington, **$539,000.** Bids 8/23, awarded 10/7. CD 9/6.

Kan., Topeka—SCHOOL—School Dist. 10, Topeka, general contract Highland Park Rural High School, to Douglas Constr. Co., 510 E. 15 St., **$518,000.** Bids 9/26. CD 9/7.

Ky., Middletown — SCHOOL — Jefferson Co. Bd. Educ., 618 W. Jefferson St., Louisville, general contract 3 and 4 story concrete Eastern High School, to Derby Constr. Co., 3060 Crittenden Dr., Louisville, **$894,000.** Bids 9/29. CD 9/12.

La., Monroe—POWER PLANT IMPRVS.—City, furnishing, installing steam generating unit, turbine generators, surface condensors, to Westinghouse Electric Corp., P. O. Box 4808 Atlanta, Ga., **$597,490.** Bids 9/13, awarded 9/17. CD 8/30.

Mont., Warm Springs—HOSPITAL BLDGS. —State of Montana, Bd. Examiners, Helena, general contract brick recreation hall, 2 cattle sheds, remodeling butcher shop, 1 ambulatory elevators, State Hospital for Insane, to Askevold Constr. Co., Missoula, **$335,600.** Awarded 10/5. CD 8/22/46.

Nev., Carson City—OFFICE—State Hy. Dpt., Herbert Memorial Bldg., general contract, 2 story, basmt., 170x170 ft., rein.-con. brick office, to Walker Roudwin Constr. Co., 311 N. Park St., Reno, **$398,705.** Bids 10/7. CD 9/20.

N. C., Aberdeen — SCHOOL, etc. — Moore County Bd. Educ., H. Lee Thomas, secy. Carthage, school, gymnasium and boiler room, to Grannis & Sloan, Fayetteville, **$256,-700.** Bids 10/4. CD 9/15.

N. C., Chapel Hill—LIBRARY—University of North Carolina, Chapel Hill, library addns., to G. A. Jones Constr. Co., 209 W. 4 St., Charlotte, **$985,400.** Bids 9/22. CD 9/27, under LB.

N. C., Durham—DORMITORY—North Carolina College for Negroes, Durham, dormitory for men, to T. W. Poe & Sons, Durham, **$591,-612.** Bids 9/29. CD 10/4. Serial No. 2.

Tex., Beaumont—SCHOOL—Beaumont Independent School Dist., Beaumont, school, and various associated works, Herman Weber, Perlstein Bldg., **$439,898.** Bids 9/27. CD 9/13.

Wis., Winnebago—BOILER PLANT—State Dpt. P. Welfare, Madison, general contract boiler plant, to Stapp Eng. Co., 512 Tabor Bldg., Denver, Colo., **$282,880.** Bids 7/29. CD 8/11, under LB.

Newfoundland, St. Johns—DWELLINGS— Central Mortgage & Housing Corp., 70 Lyon St., Ottawa, Ont., 50 dwellings to Horwood Co., Ltd., 21 Water St., St. Johns, **$350,000.**

N. S., Halifax—SCHOOL—Bd. School Comrs., 81 Neville St., Alexander School, Brunswick St., to Foundation Maritimes, Ltd., 135 Lower Water St., Approx. **$384,892.** Bids 9/30. CD 9/12.

●**Ont., Barrie field** — HOUSES — Central Mortgage & Housing Corp., 395 Fleet St. W., Toronto, 283 houses at Military Camp Job, Barrie field (D.N.D. Non-Urban) Proj. 1/49, to Russell Constr. Co., Ltd., 501 Harbor Commissioners Bldg., Toronto. Approx. **$1,900,000.** Bids 9/30. CD 9/19.

COMMERCIAL BUILDINGS

BIDS ASKED

October 27

N. Y., Bayside — HOME FOR AGED — Ozanam Hall, c/o Diocesan Bldg. Comm., 191 Joralemon St., Brooklyn, Home for Aged, $800,000. Beatty & Berlenbach, 32 Court St., Brooklyn, archts. CD 9/23.

October 28

Tenn., Memphis—CHURCH—Temple Baptist Church, c/o Anker F. Hansen, archt., Columbian Mutual Tower Bldg., remodel church. $350,000.

About November 1

●**Ala., Mobile**—HOSPITAL—Mobile Infirmary, Inc., c/o Platt Roberts & Co., archts., Merchants Bank Bldg., 250-bed hospital. Approx. $1,000,-000. Plans deposit $100. CD 6/13/47.

November 1

Calif., Daly City — BOWLING ALLEY — Broadmoor Bowl, c/o Robert Nordin, archt., 1940 Mills Bldg., San Francisco, 1 and 2 story, concrete block bowling alley bldg., incl. stores and cocktail lounge, **$250,000.**

Ore., Bend—HOSPITAL—St. Charles' Hospital, Bend, 3 story, rein.-con. hospital addn. $800,000. Plans deposit $50. J. W. Maloney, Central Bldg., Seattle 4, Wash., archt. CD 3/3.

November 2

Calif., La Jolla—HOSPITAL—Scripps Memorial Hospital, La Jolla, 2 story 160 bed hospital. Approx. $500,000. Frank L. Hope, Union Bldg., San Diego, archt.

November 5

●**Ill., Chicago**—OFFICE—Chester C. Moore, c/o Ralph C. Harris, archt., 53 W. Jackson St., Zone 4, 8 story, 110x120 ft., rein.-con., brick office. $1,000,000. CD 7/11.

About November 15

Pa., Upland—HOSPITAL—J. Lewis Crozer Hospital, hospital, $300,000. George Wharton Pepper, Jr., Lewis Tower Bldg., Phila., archt. CD 5/13.

Early January

Mo., Kansas City—STORES ADDN, etc.—S. S. Kresge Co., T. B. Murphy, Mgr. Constr. Dpt., 2727 Second Ave., Detroit 32, Mich., 2 stores addn. and modernization, incl. 2 story uniform facade with permanent canopies over sidewalks on both streets.

About January 2

Va., Bristol—HOSPITAL—Bristol Memorial Hospital, Roy C. McClure, pres. Bd., Bristol, hospital.

About March 15

Ill., Belleville — AGED PERSONS HOME — Southern Illinois Synod of Evangelical and Reformed Churches, W. A. Schickendanz, chn. Finance Com., 10A W. Washington St., first two units, aged persons home, 100 adjoin St. Pauls Old Folks Home, 1021 W. East St. $470,000. Schmidt & Kreuger, 6376 Clayton Rd., Clayton, St. Louis, Zone 5, Mo., archts. CD 12/8.

Bids Asked

Ill., Chicago—HOME for AGED—Bethesda Home for Aged, 2833 N. Nordica St., 5 story, brick addn. Home for Aged, $300,000. Kiefstad Eng. Co., 3450 N. Kostner St., engr.

SOON LETS CONTRACT

Kan., Wichita—GYMNASIUM—Sacred Heart College, 3100 McCormick St., soon lets contract gymnasium, Approx. $300,000 Lorentz Schmidt, McVay & Peddie, 1832 E. 2 St., archts.

Pa., Drexel Hill — CHURCH — Broad St. Methodist Church, 3212 School Lane, soon lets contract church, $225,000. Bhenzel Fink, 1701 Arch St., Phila., archt. CD 4/11.

Pa., Phila.—CHURCH—Good Shepherd Roman Catholic Church, 67 St. and Chester Ave., soon lets contract church. $500,000. Peter F. Getz, 1634 N. 6 St., archt. CD 8/10, under LB.

Tex., Waco — EDUCATIONAL — Columbus Avenue Baptist Church, 1309 Columbus Ave., soon lets contract 3 story bsmt., educational bldg. $350,000. W. Cocke Jr & Co., 1507 Franklin St., archt. Frank Drought, 117 W. Pecan St., San Antonio, structural engr. H. B. Wells, Dallas, mechanical engr. CD 8/2.

Tex., Waco—DORMITORY—Methodist Orphanage Home Waco, soon lets contract 2 story 2 unit dormitory, $300,000. Extended date. Ray C. Arnold, Nacol Bldg., Wichita Falls, archt. CD 9/30.

Wash., Renton—LODGE, etc.—Gaffney's Lake Wilderness, Inc., Renton, soon lets contract 2 story frame lodge and 85x271 ft., rein-con. mill, $300,000. Young & Richardson, Central Bldg., Seattle, Zone 4, archts. CD 6/22.

Wash., Seattle—HOSPITAL—Group Health Co-operative, Securities Bldg., Zone 1, soon lets contract 4 story, 38x42 ft. Group Health Hospital addn. $500,000. LaMonte Shorett, Securities Bldg., archt.

LOW BIDDERS

Calif., Los Angeles—HEALTH CENTER—Los Angeles Tenth Dist. Congress of Parents & Teachers, Inc., 493 California St., rejected bids Sept. 27, 32,000 sq. ft. bldg. center, L. B. **$534,944.** Est. $500,000. CD 10/7, under LB.

●**D. C. Wash.**—HIGH SCHOOL—Archdiocese of Washington, 1719 Rhode Island Ave., Oct. 11, red brick catholic high school for boys, 3 wings, 21 classrooms, 3 laboratories, cafeteria, faculty chapel, dining room, library, auditorium, gymnasium, admin. office, library and student chapel, 4300 Harewood Rd. N. E., from Irons & Reynolds, 1701 H St. N. W., **$1,308,795.** CD 9/20.

Ind., Indianapolis—SCHOOL—Butler University, O. M. Ross, pres., 108 E. Washington St., Oct. 6, 3 story, stone, brick, rein.-con. steel School of Commerce, from K. E. Schenck Co., 1540 N. Meridian St. **$416,000.**

Tex., Port Arthur—MERCHANTILE—Sears, Roebuck & Co., Port Arthur, Sept. 29, 100x350 ft. merchantile bldg., from Templeton & Cannon, 209 Central Natl. Bank Bldg., San Angelo, **$519,000.** CD 9/21.

Tex., San Antonio — HOSPITAL — Baptist Memorial Hospital, Inc., 215 Camden St., Oct. 5, Contr. 1, maternity hospital, from H. J. Von Rosenberg, 330 Melrose Pl., **$710,400.** CD 9/28.

CONTRACTS AWARDED

Ala., Birmingham—HOMES—B & R Material Co., c/o Earl O. Murray, archt., Clark Bldg., 75 homes Bell-Air subdivision, Owner builds. Approx. **$350,000.**

Ala., Birmingham—HOMES—R. G. Brasher, 5701 7 Ave. 31 homes. Owner builds. **$250,000.**

Calif., Downey—DWELLINGS—Downey Park Investment Co., 9825 Tweedy Lane, 54 frame, stucco dwellings, Bixby, Via Amorita, Birchvale Sts., to Guild Homes, 9825 Tweedy Lane, Downey. Approx. **$270,000.**

●**Calif., Garden Grove** — DWELLINGS — Wilshire Constr. & Finance Corp., 3835 Wilshire Blvd., Los Angeles, 284 frame, stucco dwellings in Luray subdivision, Owner builds, Approx. **$1,500,000.**

●**Calif., Hawthorne** — DWELLINGS — Liberty Bldg. Co., 5548 Arbor Vitae, Los Angeles, 210 frame, stucco dwellings, Owner builds, Approx. **$1,000,000.** Mose Maltzman, 2873 S. Sawtelle Blvd., Los Angeles, archt.

Calif., Hayward—RESIDENCES—Grant Land Co., 315 13 St., Oakland, 84 five-room residences, Carson Dr., Sparling Dr., Western Rd., Mitchell Pl., Chamboase Dr., Hurley Dr. and Anderson Pl., to Tarman & Bechtel, 315 13 St., Oakland, Approx. **$504,000.**

Calif., Lakewood—DWELLINGS—Lakewood Properties, Inc., 5801 Bellflower Blvd., Bellflower, 45 frame, stucco dwellings Monlaco Rd., Conault St., Radmer, Carita, Albuty and Woodruff Aves. Owner builds, **$286,580.**

Calif., Los Angeles—DWELLINGS—D & E Corp., 176 N. Martel St., 50 frame, stucco dwellings in Pacific Palisades, to Security Constr. Co., 176 N. Martel St., Approx. **$550,000.** John R. Hollingworth, 1647 S. Robertson St., archt.

Calif., Los Angeles—STORE—Harold Pauley, 210 W. 7 St., 100x125 ft., concrete, brick store, 10709 Pico Blvd., to Wm. C. Crowell Co., 170 E. California St., Pasadena, **$500,000.** CD 2/1.

Calif., Los Angeles—DWELLINGS—Victory Park, Inc., 1308 Shatts St., 98 frame, stucco dwellings, Bleecker Ave., Friar, Sylvan Sts., Victory Blvd. Owner builds. **$821,100.**

Calif., Norwalk — DWELLINGS — Sydmar Homes, Inc., 6305 Orange Ave., Long Beach, 53 frame, stucco dwellings Bombadier and Pluton Sts. Owner builds, **$260,502.** Paul Duncan, 3823 Laurel Canyon Blvd., Los Angeles, archt.

Calif., Orange—DWELLINGS—Vern R. Huck & H. E. De Armound, 3021 Rowena St., Los Angeles, 83 frame, stucco dwellings, to Vern R. Huck, 3021 Rowena St., Los Angeles, Approx. **$539,500.**

Ill., Berwyn—SCHOOL—St. Mary of Celle Parish, 15 and Wesley Sts., 2 story, bsmnt., steel, concrete, brick school, to Frank Burke & Son, 35 S. Parkway, Chicago, Zone 3, **$260,000.** Awarded 10/3. Meyer & Cook, 1915 Lincoln St., Zone 14, Chicago, archts. CD 9/30.

Ill., Chicago—APARTMENTS—Community Development Trust, 39 S. State St., Zone 3, one 5 story, bsmnt., and 4 story, bsmnt., reinf.-con. brick apartments, incl. 36 units, 2148 W. Rosemont St., separate contracts, $375,000. Holsman, Holsman, Klekamp & Taylor, 39 S. State St., Zone 3, engrs. CD 5/26.

Ill., Chicago—APARTMENTS—Farwin & Fleischer, 77 W. Washington St., Zone 2, two 2 story, 112x113 ft., brick apartments, 7314 and 7361 St. Winchester St., to Southtown Constr. Co., 7917 S. Exchange St., Zone 17, **$392,000.** Simpson & Peck, 7917 S. Exchange St., Zone 17, archts. Awarded 10/3.

Ill., Chicago—APARTMENTS—Trust Co. of Chicago, 104 S. LaSalle St., Zone 3, two 4 story, 47x148 ft., concrete, brick apartments, 7270 and 7601 South Shore Dr., to Cadillac Constr. Co., 6847 East End Ave., Zone 19, **$250,000** each. Awarded 10/3. Alfred J. Del Bianco, 4938 Irving Park Blvd., Zone 30, archts. CD 4/18.

Ill., Park Ridge—APARTMENT—Owner, c/o A. L. Levy, archt., 179 W. Washington St., Zone 2, Chicago, 3 story, bsmnt., concrete, brick 60 unit apartment, Touhy and Greenwood Sts., separate contracts, **$350,000.** Awarded 9/30. CD 9/29.

Md., Baltimore — RESIDENCES — Fenwick Corp., 11 E. Fayette St., 108 two story, bsmnt. 15x30 ft. residences, Lyndale Ave., separate contracts, **$840,000.** L. A. Menfee, 347 Charles St., archt.

Mich., Lansing—BUILDING—Young Men's Christian Assn., Lansing, complete 3 floors, bsmnt. Y.M.C.A. to F. J. Corr, Inc., 1120 Sheridan St. **$675,000.** CD 4/14/47.

Minn., St. Paul—APARTMENTS—Minnesota Builders, Inc., 2024 Montreal Ave., nine 2 story, bsmnt., brick veneer apartments, Yorkshire and Cleveland Aves. Owner builds. Approx. **$250,000.** CD 4/11.

Minn., Virginia—HOTEL—Virginia Hotel Co., H. A. Ebmer, secy., Sept. 21, general contract 5 story, bsmnt., 109x122 ft. Coates Hotel, to A. Hedenberg & Co., 4623 E. Superior St., Duluth, **$127,567.** CD 9/1.

N. J., Atlantic City—STORE—Lerner Shops, Inc., 1326 Atlantic Ave., store to Massett Bldg. Co., 1516 Atlantic Ave., **$250,000.** CD 8/19.

N. J., Camden—RESIDENTIAL DEVELOPMENT—C & N Constr. Co., 1832 Pershing Ave., residential development, Sheridan St., etc., separate contracts, **$250,000.** Ed A. L. Cox, 709 Market St., archt.

N. J., Camden—RESIDENTIAL DEVELOPMENT—Inter-State Constr. Co., 1444 Broadway, New York, N. Y., residential development Eutaw Ave., etc., separate contracts. **$250,000.** Dante D' Anastasio, 1815 Federal St. archt.

N. J., Trenton—CHURCH—St. Anthony's Roman Catholic Church, 626 S. Olden Ave., church, to John J. McShain, Inc., 832 Prospect St. **$600,000.** John Harmon Harvey, 12 N. Warren St., archt.

●**N. Y., Flushing**—HOUSES—Southcrest Gardens, c/o Joseph Schafran, archt., 200 W. 72 St., New York, 131 houses in area bounded by 168 St., Underhill Ave., 170 St. and Lithonia Ave. Owner builds. **$1,300,000.**

N. Y., New York—HOSPITAL—American Society for Prevention of Cruelty to Animals, Madison Ave. and 24 St., approx. 14,000 sq. ft. rein.-con., limestone, brick Manhattan Shelter and Hospital, on site facing York Ave. and Franklin D. Roosevelt Dr. between E. 93 and E. 92 Sts., to The Turner Constr., Co., 420 Lexington Ave., Zone 17. Approx. **$950,000.** CD 4/27.

N. Y., Rye—OFFICE—Associated Reciprocal Exchanges of New York, 261-5 Ave., New York, general contract office, to Edward Corning Co., 294 E. 39 St., New York, Zone 16 Est. **$400,000.** Bids 8/30. CD 8/17.

N. C., Charlotte—COUNTRY CLUB—The Myers Park Club, Inc., Myers Park, country club to Blythe & Isenhour, Brevard Ct., **$375,000.** Bids 3/4. CD 2/25.

N. D., Grand Forks—HOSPITAL—Deaconess Hospital, 222 S. 4 St., general contract hospital addn., to Johnson-Gillanders Co., 424 N. 3 St., **$284,490.** Bids 9/23. CD 1/6.

O., Cincinnati — APARTMENT—Washington Constr. Co., 1000 Keith Bldg., 26 four family, 2 story, concrete bsmt., brick apartments, separate contracts. **$780,000.**

O., Cleveland Heights—CHURCH—St. Pauls Episcopal Church, 2747 Fairmount Blvd., general contract church addns., alterations, to Cleveland Constr. Co., 3866 Carnegie Ave., **$400,000.** CD 7/11, under O., Cleveland.

O., Maple Heights—HOMES—Alex Zaremba & Sons, 6575 York Rd., Parma, 28, 1½ story, bsmnt, frame homes, Libby Rd. West Maple Heights and North Blvds., separate contracts. **$252,000.**

O. Mayfield Heights—HOMES—Felix A. Dick, 1514 E. 115 St., Cleveland, 20 one story bsmnt, homes. Norton Blvd., separate contracts. **$270,000.**

O., Parma—HOMES—Brownie Homes, Inc., 5767 Ridge Rd., 32 one story frame homes, Parma Park Blvd., Jamerson, Seven, Beresford Rds., separate contracts. **$352,000.**

O., Youngstown—SHOPPING CENTER—Belmont Shopping Center, Youngstown, shopping center, Belmont Ave. between Catalina and Francesca Aves., to M. DeBartolo Constr. Co., 216 Alexander Ave. Approx. **$500,000.**

O., Youngstown—FOOD MARKET—Century Markets, Market St., food market to M. DeBartolo Constr. Co., 216 Alexander Ave., Approx. **$500,000.** The Ballinger Co., 121 N. Broad St., Phila., Pa., archt.

●**Ore., Portland**—APARTMENT—Park Plaza Inc., 4503 N. E. 28 St., 11 story, rein.-con. apartment, Park and Jackson Sts., to Reimers & Jaquette, Builders Exchange Bldg., **$1,500,000.** Awarded 10/3. Dougan, Heims & Caine, Terminal Sales Bldg., archts.

●**Pa., Bala Cynwyd** — STORE — J. B. Van Sciver Co., Market St. Ferry, Camden, N. J., store, to Lauter Constr. Co., 112 S. 16 St., Phila., **$1,000,000.** Bids 9/29. CD 9/22.

●**Pa., Erie** — SHOPPING CENTER — Rellum Realty Co., 119 E. Main St., Rochester, N. Y., 1 story, concrete block and brick, 40 unit frame shopping center, to Emil Muller Constr. Co., Inc., 119 E. Main St., Rochester, N. Y. Approx. **$1,000,000.** Rav S. Van Allstyne, 119 E. Main St., Rochester, N. Y., archt.

Pa., Media — RESIDENCES — Phila. Model Home Builders, 951 E. Godfrey Ave., Phila., residential development, State Rd., separate contracts. Approx. **$250,000.**

Pa., Phila. — RESIDENCES — Boardman Smith Corp., 1322 Airdrie St., residential development, Pleasant and Slocum Sts., separate contracts. **$250,000.** I. W. Levin, 1531 Belmont Ave., archt.

Pa., Phila. — RESIDENCES — Casselberry Constr. Co., 5314 Tabor Rd., residential development, E. Claridge St., separate contracts. **$250,000.**

Pa., Phila.—RESIDENCES—Isard & Risen Co., 16 St. and Godrey St., residential development, Front St., separate contracts. **$250,000.** G. Harold Murphy, 1621 Sellers St., archt.

Pa., Phila. — RESIDENCES — Thomas J. Kelly, 1716 W. Cheltenham Ave., residential development, Temple Rd., separate contracts. **$260,000.**

Pa., Phila. — RESIDENCES — Meadowbrook Corp., 8533 Forest Ave., Elkins Park, residential development, Saul St., separate contracts. **$350,000.**

Pa., Phila. — RESIDENCES — Montague Homes, Inc., 7037 Castor Ave., residential development, 7400 block Belden St. separate contracts. **$350,000.** J. Ethan Fieldstein, 1325 Walnut St., archt.

Pa., Phila. — RESIDENCES — St. Vincent's Homes, Inc., 1322 Airdrie St., residential development, Gilham St. near Battersby, separate contracts. **$312,000.** I. W. Levin, 1531 Belmont Ave., archt.

Pa., Pittsburgh—APARTMENT—Amberson Gardens, Inc., c/o Tennyson & Van Wart, archts., 666 Washington Rd. Zone 16, 2 three story, brick, block apartments, Amberson, Center Morewood and Bayside Aves., to Landau Bros. Building Co., 125 1 Ave. Approx. **$800,000.**

Pa., Wynnewood — RESIDENCES—Peartree & Pasfield, Inc., 33 E. Wynnewood Rd., residential development, Clover Hill Rd., separate contracts. **$396,000.** H. Barnett Pennell, 33 E. Wynnewood Rd., archt.

S. C., Columbia—OFFICE—Carolina Life Insurance Co., c/o contractor, office, to General Constr. Co., Palmetto Bldg., **$742,000.** Bids 10/5. CD 10/11, under LB.

S. C., Spartanburg — LIBRARY — Converse College, Spartansburg, library, to Fiske-Carter Constr. Co., Spartanburg. Approx. **$250,000.** CD 11/30/44.

Tex., Corpus Christi—RESIDENCES—Corpus Christi, Inc., Airport Rd., 100 duplex residences, off S. Staples St., to Lee Aikin, Airport Rd., **$875,000.** CD 10/6.

Tex., Dallas—CHAPEL, EDUCATIONAL—Kessler Park Methodist Church, Stewart and Windemere Sts., 2 story chapel and educational bldg., to Carpenter Bros., 1335 Plowman St.; **$259,600.** Landauer & Guerrero, 4801 Lemmon St., engrs. CD 5/9, under LB.

Tex., Houston — DWELLINGS — Plaza Development Co., Esperson Bldg., 90 dwellings. Owner builds. Approx. **$814,500.** CD 9/30.

Tex., San Antonio—DWELLINGS—A. A. Lowery Constr. Co., Travis Bldg., 132 dwellings proj. on 33 acres, off Gulnad and Lynn Rds., own forces. Approx. **$525,000.** CD 5/11.

Tex., Temple—RESIDENCES—W. R. Hebert, c/o Hebert Lumber Co., 2518 Huldy St., Houston, 75 residences. Owner builds. Approx. **$550,000.** CD 10/5.

Va., Woodstock—HOSPITAL—Shenandoah Memorial Hospital, Inc., Woodstock, hospital, to Earl L. Crump, 251 Park Ave., Chambersburg, Pa., **$610,054.** Bids 9/1. CD 9/14, under LB.

INDUSTRIAL BUILDINGS

BIDS ASKED

October 26

S. C., Bennettsville—PLANT—Marlboro Developing Corp., Bennettsville, mfg. plant. Plans deposit $100. CD 8/29, under CA.

October 28

Ga., Jefferson—WAREHOUSE, etc.—Jackson Electric Membership Corp., Jefferson, warehouse and office. Plans deposit $25. Southern Eng. Co., 699 Spring St., N. W., Atlanta, archts.

About November 1

Neb., Incoln—GARAGE—Lincoln Development Co., c/o Martin I. Aitken, 204 Stuart Bldg., and Clark & Emersen, Sharp Bldg., assoc. archts., Lincoln, auto parking garage. Approx. $100,000. CD 3/7.

November 3

Pa., Pittsburgh—SERVICE—H. J. Heinz Co., 1062 Progress St., remodeling interior of service bldg. Approx. $500,000. Skidmore, Owings & Merrill, 5 E. 57 St., New York, N. Y., archts. P. K. Shoemaker, c/o owner, ch. engr. CD 12/10.

November 17

O., Hamilton—WAREHOUSE—Omar, Inc., 1910 Harney St., Omaha, Neb., warehouse, $125,000. Extended date. Luria Eng. Co., 500 5 Ave., New York, N. Y., engr.-archt. CD 9/13.

Bids Asked

Del., Wilmington — WAREHOUSE—Sears Roebuck & Co., Roosevelt Blvd. and Adams Ave., Phila., Pa., rehabilitate warehouse $100,000. The Ballinger Co., 121 N. Broad St., Phila., Pa., archts.

O., Columbiana—FACTORY—F. C. Russell Co., 6400 Herman St., Cleveland, 80x100 ft. factory addn. west of present plant.

Que., Montreal — WAREHOUSE — W. J. Rosenberg, archt., 2052 W. St. Catherine St., 1 story, bsmnt., rein.-con., structural steel, brick warehouse, for Kruger Paper Co., Ltd., 941 Inspector St., $100,000.

SOON LETS CONTRACT

O., Toledo — WAREHOUSE, etc. — R. E. Ansted Co., 9 N. Huron St., soon lets contract 1 story warehouse and food distributing bldg., Westwood Ave., $100,000. Rupert Neubrecht, 233 John St., Detroit, Mich., archt.

Pa., Harrisburg — WAREHOUSE — Esso Standard Oil Co. of Penna., 21 S. 12 St., Phila., soon lets contract warehouse 3535 N. 6 St., $71,710. L. C. Taliferro, c/o owner, engr. and archt.

Pa., Phila.—SERVICE etc.—Savery, Scheetz & Gilmour, archts., 1520 Locust St., soon lets contract service bldg. and store for Singer Sewing Machine Co., 149 Broadway, New York, N. Y., $150,000. CD 4/4/46, under Commercial Buildings.

Pa., Phila.—FACTORY—Sears Roebuck & Co., Roosevelt Blvd. and Adams Ave., soon lets contract paint factory addns. $600,000. W. W. Davas, owners Eastern Constr. Chief.

S. C., Charleston—PLANT—Charleston Industrial Assoc., c/o Augustus E. Constantine, archt., 139 Calhoun St., soon lets contract coffee roasting plant for William B. Reily & Co. $75,000.

Tex., Dallas—SHOP, etc.—Strayhorn-Lacy Buick Co., 606 N. Edgefield St., soon lets contract 1 and 2 story, 70x182 ft. and 30x180 ft. masonry auto shop, sales, parts. $100,000. Adams & Adams, 1707½ Main St., archts.

Ont., Etobicoke — PLANT — Parkin Assoc., archt., 717 Church St., Toronto, soon lets contract 1 story 110x110 ft. factory and 2 story 35x110 ft., no bsmnt., office section, processing plant, office and showroom, for Faberge Perfumes, Ltd., 690 King St. W., Toronto, Approx. $125,000. CD 3/9.

Que., Montreal—WAREHOUSE—H. S. Labelle, archt., 3 Kelvin Ave., Outremont, soon lets contract 1 story bsmnt., 101x192 ft. concrete brick warehouse, for St. Pierre Realties, 3 Kelvin Ave., Outremont.

LOW BIDDERS

Calif., San Francisco—PLANT—General Petroleum Corp., 417 Montgomery St., San Francisco, reconstructing Islais Creek Plant, from Hunter & Works, 7480 Mission St., Colma. Approx. **$68,000.** CD 9/7.

Ga., Augusta—WAREHOUSE, etc.—Mc Kesson & Robbins, Inc., c/o Kuhlke & Wade, archts., 16 Campbell Bldg., warehouse and office, from B. G. M. Constr. Co., Augusta, **$109,000.** CD 9/30.

●Mich., Lansing — PLANT—Lansing State Journal, Grand and Lenawee Sts., rejected bids Sept. 1, 44x147x190 ft. newspaper plant, Grand and Lenawee Sts., East housing **$1,000,000.** Morton L. Pereira, archt., 100 W. Monroe 3, Ill., revised plans. CD 8/1.

Tex., Austin—SALES and SHOPS—Jack Stableford Pontiac Co., c/o Niggli & Gustafson, archts., 4303 Avenue F, Oct. 8, structural steel, brick, tile auto sales and shops, from Barney P. Slaughter Co., 4702 E. 1 St., **$78,685.** Est. $75,000. CD 10/4.

Tex., Beaumont — WAREHOUSE — Rinswanger & Co., 100 N. Main St., Houston, warehouse, from Tellepsen Constr. Co., 1710 Telephone Rd., Houston, **$89,540.** Stone & Pitts, 951 M & M Bldg., Houston, archts.

Tex., Dallas—BAKERY—Owner c/o Phil T. Crown, archt., 1135 Plowman St., Oct. 4, bakery from Carpenter Bros., 1335 Plowman St., Approx. **$71,000.**

Tex., Houston—WAREHOUSE—Marley Co., Inc., Fairfax and Marley Rd., Kansas City, Kan., Oct. 4, warehouse, from Tellepsen Constr. Co., 1710 Telephone Rd., **$68,200.** CD 9/30.

CONTRACTS AWARDED

Ark., Little Rock—LAUNDRY—Acme Laundry, 1000 Spring St., laundry, to G. W. May Constr. Co., c/o Gincchio & Cromwell, archts., Hall Bldg., **$70,055.** Bids 9/20.

Calif., Los Angeles—WAREHOUSES—Century Industrial Corp., 5510 W. 104 St., 2 reinforced brick warehouses, to Hayden Constr. Co., 10100 Inglewood Redondo Blvd., Inglewood, **$70,000.**

Calif., San Leandro—FACTORY—American Blower Co., c/o American Radiator & Standard Sanitary Corp., 1426 Maccabees Bldg., Detroit, Mich., masonry, steel factory, to The Austin Co., 618 Grand Ave., Oakland, Approx. $400,000.

Del., Dover — PLANT—International Latex Corp., Dover, 2 story, 62x171 ft. brick, steel plant, separate contracts, **$100,000.** Walter E. Carlson, Penna. R. R. Bldg., Dover, archt.

Fla., Jacksonville — WAREHOUSE, etc.—Claude Nolan, Inc., 937 Main St., warehouse and office, to Caldwell-Scott Constr. Co., 99 Broad St., New York, 4, N. Y., Approx. **$200,000.**

Ga., Atlanta — STORAGE, etc. — National Cash Register Co., c/o contractor, storage and service bldg. and office, to Gilbert Beers, 489 Bishop St. N. W. Approx. **$108,440.**

Ill., Chicago—PLANT—Agar Packing & Provision Co., 4031 S. Union St., Zone 9, 4 story, rein.-con. brick packing plant addn., to Clarence A. Franzen, 7437 S. Lafayette St., Zone 19, **$115,000.** R. J. McLaren, 5936 Midway Park, Zone 44, archts.

Ill., Chicago—FACTORY—Hart, Schaffner & Marx, 36 S. Franklin St., Zone 6, factory alterations, to Carroll Constr. Co., 333 N. Michigan St., Zone 1, **$70,000.** Holabird, Root & Burgee, 180 N. Wabash St., Zone 1, archts. Awarded 10/3.

Ill., Chicago—FACTORY—W. H. Snow Co., 221 E. 26 St., Zone 16, 12,000 sq. ft. brick, concrete factory, to Nels Wagstad Co., 5304 W. Devon St., Zone 30, **$70,000.** E. L. Larson, 4814 N. Damen St., Zone 40, archt.

●Ind., Fort Wayne—TERMINAL and YARD FACILITIES—New York, Chicago, & St. Louis R. R. Co., H. F. Whitmore, ch. engr., Terminal Tower, Cleveland, O., 1 story, 128x190 ft. round house, pits, engine turntable, yard office, hostler bldg., sand house, water treatment plant, near here, to Hagerman Constr. Co., 403 E. Superior St. Approx. **$2,000,000.** Awarded 10/7. R. C. Turnbull, c/o owner, archt. CD 3/4.

Ind., Indianapolis — FACTORY — Schwitzer-Cummins Co., Louis Schwitzer, mgr., 1125 Massachusetts Ave., 1 story, 120x150 ft. brick, concrete, steel factory addn., 1300 Massachusetts Ave., to E. B. Ball & Son, 1011 N. Beville Ave., Approx. **$200,000.** Awarded 10/8.

La., DeRidder—WAREHOUSE, etc.—Beauregard Electric Co-op., Oct. 3, warehouse and office, to Vernon Builders & Constrs., P. O. Box 45, Leesville, **$92,800.** CD 9/28.

Md. Baltimore—PARKING STRUCTURE—Calvert Parking Corp., 219 N. Calvert St., rein.-con. off-street parking structure, to Piracci Constr. Co., 2552 Woodbrook Ave., **$130,000.**

N. J., Camden—STORE ROOM, etc.—Public Service Gas & Electric Co., 80 Park Place, Newark, store room, office and employees quarters, to L. F. Driscoll Co., 18 W. Chelten Ave., Phila., Pa., **$125,000.** Bids 9/5. CD 8/31.

O., Cleveland—TRUCK TERMINAL—Gund Realty Co., 1476 Davenport Ave., 1 story, 100x200 ft., steel truck terminal, to H. R. Nemec, Inc., 805 Union Bldg., **$80,000.** Awarded 9/28.

O., Columbus—PLANT—Capital City Products Co., 525 W. 1 Ave., plant addn., remodeling, to Leo E. Ruisinger, Inc., 851 Frambes Ave. Approx. **$80,000.**

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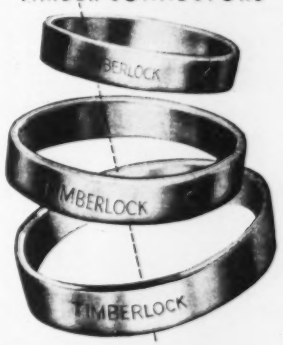

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COMPLETE WELLPOINT SYSTEMS

O., Toledo—FACTORY—Unitcast Corp., 3035 Front St., 1 story, brick, steel, glass factory, to John Naumann & Sons, Inc., 364 Parker St., Approx. **$75,000.** Bellman, Gillet & Richards, 518 Jefferson St., archts.

Ore., Heppner—GRAIN ELEVATOR—Morrow County Grain Growers, Inc., Heppner, grain elevator, to E. S. McKittrick, 7839 Santa Fe Ave., Huntington Park, Los Angeles, Calif., **$200,000.** Awarded 10/7. CD 7/28.

Ore., Portland—WAREHOUSE—Aluminum-Lock Shingle Corp., Equitable Bldg., 1 story, 10,000 sq. ft. rein.-con. warehouse, S. E. Powell and 7 Sts., to Wilson & Dean Constr. Co., Inc., 2053 N. E. 58 St., **$100,000.** Awarded 10/8. CD 10/6.

Pa., Bristol—MANUFACTURING—Rohm & Haas Co., 222 W. Washington Square, Phila., Mfg. Bldg. 34 addn., to Frank V. Warren, Inc., 9225 W. Thompson St., Phila., **$100,000.** Est. $70,000. CD 9/23.

Pa., Chester — SHOWROOM, etc.—C. R. Louchead, Inc., 9 and Sproul Sts., 1 story, 9x150 ft., brick showroom and garage to Fleming Co., 1717 Sansom St., Phila. Approx. **$100,000.** Norman Hulme, 152 Chestnut St., Phila., archt.

Pa., Northumberland—FACTORY—L'Aiglon Apparel, Inc., 15 and Mt. Vernon Sts., Phila., 1 story, 10,000 sq. ft. concrete block, brick factory addn., to Shelley Spera Constr. Co., 227 State St., Harrisburg, **$100,000.** Bids 8/25. CD 8/18.

Pa., Springfield — LABORATORY—Bartol Research Foundation of the Franklin Institute, 20 and Parkway Sts., Phila., laboratory to Barclay White Co., 22 N. 36 St., Phila., **$125,000.** Bids 9/14. CD 9/8.

Tex., Borger—REFINERY—Phillips Petroleum Co., Borger, reconstruct Aviation Alkalite unit of refinery. Own forces. Approx. **$90,000.**

Tex., Dallas—WAREHOUSE—Trinity Industrial Dist., c/o Republic Bank Bldg., warehouse to Williams & Wagner Constr. Co., 8515 Preston Rd. Approx. **$70,000.** John Ebert, 206 N. Tatum St., archt.

Tex., Fort Worth—REFINERY—Magnolia Petroleum Co., 528 N. Main St., blast damaged refinery reconstruction, own forces. Approx. **$90,000.** CD 9/29.

Tex., Hereford—GRAIN ELEVATOR—Fraser Grain Co., Hereford, 800,000 bu. grain elevator, own forces. Approx. **$295,000.** CD 6/21/46.

Tex., Hereford—GRAIN ELEVATOR—Pitman Grain Co., Hereford, 400,000 bu. grain elevator, own forces. Approx. **$156,000.** CD 10/5.

Tex., Houston — WAREHOUSE — Edmund Poncoffs, 5220 Carolina Ave., warehouse to Culpepen Constr. Co., 1710 Telephone Rd. Approx. **$70,000.**

●**Tex., Speaks**—RECYCLING PLANT—Shell Oil Co., Shell Bldg., Houston, recycling plant, 7 mi. north of Speaks, 8 mi. south of Vienna, to Fluor Corp. Ltd., M. Esperson Bldg., Houston. Approx. **$1,000,000.**

Tex., Vernon—SERVICE, etc.—Davney & Harvey Chevrolet Co., Vernon, auto service shop, sales, to BMFP Constr. Co., Lubbock. Approx. **$70,000.** CD 10/4.

Wis., Beloit—SHOP—Fairbanks Morse & Co., Beloit, 1 story, 80x80 ft. and 1 story, 30x80 ft steel, steel siding, diesel locomotive shop addn., concrete floor, Cunningham Bros., 359 E. Grand Ave., Beloit. W. Fred Dolke, 189 W. Madison St., Chicago, Ill., engr.

Wis., Eau Claire — WAREHOUSE — U. S. Rubber Co., 1230 Ave. of the Americas, New York, N. Y., 4 story, bsmnt., 175x440 ft., rein.-con. glass block warehouse, to C. Fuller Constr. Co., 111 W. Washington St., Chicago, Ill. C. A. Ostling, c/o owner, engr. CD 9/29.

Alta., Red Deer—REFINERY—East west Oil Syndicate, 10015 110-14 St., Edmonton, oil refinery, to Sparling Davis Co. Ltd., 7310 99 St., Edmonton. Approx. **$150,000.**

Newfoundland, St. Johns—PLANT—Bennett Brewing Co., Ltd., 7 Sudbury St., bottling plant, to T. A. LaFortune, c/o owners. **$120,-000.**

Ont., Etobicoke—FACTORY—Glass Art Cut China Co., 400 Carlaw Ave., Toronto, concrete brick factory, to Taylor Brothers, 208 Sherborne St., Toronto. Approx. **$70,000.**

Ont., Woodstock — FACTORY — Standard Tube Co., Ltd. 14 Drew St., concrete, brick factory to J. A. Vance, 163 Main St., **$70,000.**

Que., Montreal—FACTORY—St. Michel Realties, Ltd., 1015 W. Sherbrooke St., Montreal, factory, to L. Donolo, Inc., 85 Jean Talon, **$100,000.** M. W. Roth, 1015 W. Sherbrooke St., archt.

UNCLASSIFIED

BIDS ASKED

October 25

†Conn., Southington — STAND-BY FACILITIES — District P. Wks. Office, Third Naval Dist., Hudson Terminal Bldg., 50 Church St., New York, 6, N. Y., rehabilitation stand-by facilities, Naval Industrial Plant, Pratt and Whitney Sts., Spec. 23049. Plans deposit $10.

South Carolina — RURAL DISTRIBUTION LINES—Newberry Electric Co-operative, Inc., Newberry, 20.57 mi. rural distr. lines and 21.08 mi. conversion, Newberry Co. Plans deposit $25. Southern Eng. Co., 699 Spring St. N. W., Atlanta, Ga., engrs. CD 7/5.

October 26

Ont., Burlington—PIERS—Dpt. P. Wks., Hunter Bldg., Ottawa, repairing piers at entrance of Hamilton Bay, Approx. $32,000. R. Blais, c/o owner, engr.

October 27

†Arizona — BREAKERS, etc. — Bureau Reclamation, Dpt. Interior, Phoenix, circuit breakers, disconnecting switches, horn-gap switches for substations at Pumping plants 1, 2 and 3 power supply to Wellton-Mohawk Division, Gravity Main Proj. and Gila Proj. Spec. R3-PX-23 (Region 3). L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

†Colorado—RECEIVER SETS, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, furnishing, del. f.o.b. cars shipping point of f.o.b. cars Kremmling, Granby and Loveland, transmitter-receiver sets, for Green Mountain, Power Plant, Granby Pumping Plant, Estes Power Plant, Flatiron substation; carrier-current line traps for Green Mountain Power Plant, Oak Creek Tap, Shadow Mountain Tap, Willow Creek Tap; coupling capacitors, for Granby Pumping Plant, capacitor potential device and carrier-frequency cable for Estes Power Plant, carrier-frequency cable for Granby Pumping Plant, and Green Mountain Power Plant, Colorado-Big Thompson, Proj. Spec. 2789. L. N. McClellan, ch. engr.

October 28

Texas—RURAL DISTRIBUTION LINES—Cherokee County Electric Co-operative Assn., Rusk, 74 mi. rural distr. lines, Smith and Cherokee Counties. $65,000. Plans deposit $10. Returned unopened bids to have been opened Sept. 27. H. B. Gieb & Assoc., 1207 Texas Bank Bldg., Dallas, engrs. CD 9/21.

Tex., Corpus Christi—PARKS—City, Lindale and T. C. Ayres municipal parks imprvs., incl. recreation bldgs. $50,000. R. Colley, 3204 Santa Fe St., archt. CD 9/29/48.

October 31

Que., Montreal — PIER — P. Buckley, secy., National Harbours Bd., West Block, Ottawa, Ont., reconstruction upstream face Jacques Cartier Pier, Montreal Harbour. Approx. $200,-000. Plans deposit $100.

November 1

†Arizona-California-Nevada — STRUCTURAL STEEL—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Boulder City, Nev., misc. structural steel for Hoover Power Plant, Boulder Canyon Proj., Spec. 2810. L. N. McClellan, ch. engr.

†California — SHEAVES, etc. — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars at Bethany, Calif., sheaves and block incl. hook, shafts, grease fittings, pedestal, shackles, spacers, bolts, nuts, washers, rope guards, and 750 of 1¼ in., 6 by 37 extra-flexible wire rope for Tracy Switchyard Central Valley Proj., Spec. 2805. L. N. McClellan, ch. engr.

Texas—RURAL DISTRIBUTION LINES—Kimble Electric Co-operative, Junction, 174 mi. rural distr. lines, Edwards Co., $144,000. Plans deposit $25. J. H. Flood & Co., 2906 Franklin St., Waco, engrs. CD 10/14.

November 2

California — TRAFFIC SIGNAL SYSTEMS, etc.—State Div. Hys., Pub. Wks. Bldg., Sacramento, traffic signal sys. and intersection lighting at 5 intersections and street imprvs. at one intersection on Main St. and 1, 3 and 5 Sts. on Broadway at 3 and 5 Sts. and on 1 St. at Shasta Way, Butte Co. G. T. McCoy, state hy. engr.

Tex., Waco—STADIUM, etc.—Baylor University, Waco, 40,000 seat stadium, incl. appurtenances, incl. athletic field. $900,000; Plans deposit $50. 80 acre auto parking grounds, hard paving, etc. $80,000. Extended date. W. E. Simpson Co., 945 Milam Bldg., engr. Halsey & Royer, Transit Tower, mechanical engrs. CD 9/14.

November 3

California — TRAFFIC SIGNAL SYSTEMS, etc.—State Div. Hys., 120 S. Spring St., Los Angeles, traffic signal sys. and intersections lighting at 2 intersections on Grand Ave. at Commonwealth and on E. 1 St. at Tustin Ave., Orange Co. G. T. McCoy, P. Wks. Bldg., Sacramento, state hy. engr.

November 9

†Tenn., Oak Ridge — SPRINKLER SYSTEMS — Roane-Anderson Co., P. O. Box 456, automatic sprinkler system for American Museum of Atomic Energy Bldg., No. 1805-T-2 and Midway Warehouse Bldg., No. 1918-T-2. Inv. No. 49-21. Plans deposit $5.

November 15

†Va., Richmond—THERAPEUTIC POOL—Veterans Admin., Munitions Bldg., Wash. 25, D. C., therapeutic pool for paraplegics in Bldg. 327, Spec. No. 4936.

December 6

†Oregon—HYDRAULIC TURBINES—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., design, mfg. and delivery of four 111,300 hp. hydraulic turbines for McNary Dam Power Plant; CIVENG-45-164-50-40.

Late in January or early in February

Kansas—RURAL DISTRIBUTION LINES—Lane-Scott Electric Co-operative Inc., Harvey C. Callender, mgr., Dighton, 280 mi. rural distr. lines, Lane Co. L. C. Leavitt Co., Garden City, engr. CD 11/15/46.

SOON LETS CONTRACT

Missouri—RURAL DISTRIBUTION LINES—Barry Electric Co-operative, Cassville, soon lets contract 69.48 mi. rural distr. lines and 6.5 mi. conversion, Barry and McDonald Counties, $55,000. CD 5/13.

LOW BIDDERS

†California — TRANSMISSION LINES — Bureau Reclamation, Elverta, Oct. 7, two 230-kv transmission lines, incl. 54 mi. constr. foundations erecting steel towers, stringing conductors from Perkins to Tracy and Oroville to Elverta, Central Valley Proj., Spec. 2781, Schedule I, from Murlark Co., Inc., 2277 Jerrold Ave., San Francisco, **$434,163;** Schedules II and III, from Donovan James, 1725 Carroll Ave., St. Paul, Minn., **$96,308** and **$115,765** respectively. CD 9/13.

Calif., Palo Alto—ELECTRICAL DISTRIBUTION—City, City Hall, Oct. 3, electrical distr. street lighting water and gas distr. sys., from Palo Alto Dpt. P. Wks., City Hall. **$203,675.**

Calif., San Bernardino—EXHIBIT BUILDING—National Orange Show, Oct. 5, 172x216 ft. exhibit bldg., from Robinson & Wilson, 179 4 St., **$123,800.** Est. $159,000. CD 9/28.

Calif., San Mateo—CORPORATION YARD—City, City Hall, Oct. 3, grading, paving Corporation Yard, from Arthur Bros., 811 B St., **$84,825.**

Calif., San Rafael—FIELD, etc.—City, City Hall, Oct. 3, Albets Field, municipal recreation center, incl. baseball and softball courts, tennis courts, etc., from Robt. McCarthy Co., 1050 Kirkham St., San Francisco, **$231,247.** CD 9/20.

Kansas—RURAL DISTRIBUTION LINES—Co-operative Electric Power & Light Co., Iola, Sept. 22, 161 mi. rural distr. lines, conversion 54.5 mi. Coffey, Anderson, Woodson, Allen, Wilson and Neosho Counties, from Kerns-Ramsey Constr. Co., Fredonia, **$215,397.** CD 8/14.

Md., Baltimore—CONDUITS—Mayor & City Council, City Hall, rejected bids Sept. 21, 6,040 lin. ft. trench excav., 15 manholes, 6,070 lin. ft. conduit encased in concrete, 11,050 sq. ft. concrete footways, Contr. 7, L. B. **$86,12.** CD 9/28.

Md., Baltimore — SWIMMING POOLS, etc.—City, City Hall, rein.-con. swimming pools and brick bath house, from Kramer Constr. Co., 11 E. Lexington St., **$210,256.** R. E. L. Williams, 410 Municipal Bldg., bldg. constr. engr. CD 2/7/45.

Minnesota—RURAL DISTRIBUTION LINES—Meeker Co-operative, Light & Power Assn., Litchfield, I. Clinton, mgr., Oct. 3, labor and materials, tie lines and convert about 80 mi. rural distr. lines, Meeker and Wright Counties, Constr. Co., Pelican Rapids, **$114,018.** Banister Engr. Co., 1549 University Ave., St. Paul, engr. CD 9/30.

N. D., Fargo — STREET LIGHTING—City, City Hall, 639 NP St., Sept. 6, street lighting, from Central Electric Co., 403 NP Ave., **$110,864.**

O., Cincinnati—CARNIVORA BLDG., etc.—Bd. Park Comrs., 2005 Gilbert Ave., rejected bids Carnivora bldg. and rotunda. CD 8/31.

Pa., Phila.—SUBWAY—Dept. of City Transit, Lawrence Costello, dir., City Hall Annex, pump rooms alterations, pumps, etc., Broad St. Subway, from Edward F. Roberts Co., 2622 W. Columbia Ave., **$331,330.** CD 11/9/44.

South Dakota — RURAL DISTRIBUTION LINES — Upper Grand River Electric Co-operative, Bison, Sept. 28, 355 mi. rural distr. lines, from Zontelli Constr. Co., Ironton, Minn., **$181,400.** CD 5/16.

CONTRACTS AWARDED

Calif., Colma — MAUSOLEUM — Woodlawn Memorial Park, Colma, 2nd mausoleum addn. at Woodlawn Memorial Park, to Ira H. Larsen 64 S. Park St., San Francisco, Approx. **$400,000.** Wm. G. Merchant, 57 Post St., San Francisco, archt.

Calif., Susanville—GRANDSTAND—Lassen Co., Courthouse, grandstand for County Livestock Show, to T & M Carpenter Shop, 807 Union St., **$93,800.** Bids 10/3. CD 9/20.

Ga., Macon—SWIMMING POOL, etc.—City, swimming pool, bath house and equip., to A. R. Briggs Constr. Co., Macon, **$56,350.** Bids 9/14. CD 9/7.

Ga., Thomasville—MOTOR COURT—C. A. Powell, Thomasville, motor court addn. Owner builds. Approx. **$60,000.**

Kansas—RURAL DISTRIBUTION LINES—Lane-Scott Electric Co-operative, Dighton, 307.7 mi. rural distr. lines, to Douglas Contractors, Keeling Bldg., Omaha, Neb., **$289,-073.** Bids 9/20. CD 8/2.

Ky., Lexington—LIGHTING SYSTEM—State, Engr. & Constr. Division, Frankfort, stadium lighting sys., University of Kentucky, to Beltzhoover Electric Co., Francis Bldg., Louisville, **$88,298.** CD 11/17/47.

Ky., Pineville—DRIVE-IN THEATRE—Mose Reda, c/o Redas Theatre, Pineville, drive-in theatre, 2.5 mi. north of Middlesboro, on Hy. 25-E, separate contracts. Approx. **$100,000.**

La., Lafayette—LIVESTOCK ARENA—South Louisiana Mid-Winter Fair Assn., c/o contractor, livestock arena, alterations, addns. to Kaplan Constr. Co., P. O. Box 307, **$67,321.** Bids 10/4.

Ohio—PIPELINE—Standard Oil Co. of Ohio, Midland Bldg., Cleveland, 38 mi. 8 in. pipeline from Toledo to Fostoria, to Britton Constr. Co., Hamilton, Approx. **$700,000.**

O., Cincinnati—APE HOUSE, etc.—Bd. Park Comrs. 2905 Gilbert Ave., ape house and amphitheatre, to Charles R. Maescher Co., 2101 Florence Ave., **$225,255.** CD 8/31.

O., Kenton—SWIMMING POOL—City, municipal swimming pool, to Parkersburg Excavating Co., Parkersburg, W. Va., **$106,879.** Est. **$100,000.** CD 6/10.

Oregon — RURAL DISTRIBUTION LINES—Benton-Lincoln Electric Co-operative, 561 Van Buren St., Corvallis, 74 41 mi. rural distr. lines, Benton and Lincoln Counties, to Lacy Electrical Constr. Co., Builders Exchange Bldg., Portland, **$143,530.** Bids 9/23, awarded 10/3. CD 9/16.

Texas — GAS LINES — United Gas Pipe Line Co., 1525 Fairfield St., Shreveport, La., addnl. natural gaslines, Hallettsville area, Lavaca Co. Purchase and Hire. **$145,000.** CD 12/1/48.

●**Que., Sorel**—DOCK—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Dock 2 repairs and imprvs., to Armand Sicotte & Fils, 1906 Van Horne Ave., Montreal. Approx. **$1,201,619.** Bid 10/5. CD 9/23.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Brisbane—City, City Hall, defeated **$175,000** bonds water sys. CD 8/15.

Calif., Pittsburg—City Hall, **$425,000** bond election Nov. 8, 9 m.g. water reservoir, E. L. O'Hara, City Hall, city engr. CD 1/3/47.

Tenn., Signal Mountain—Walden's Ridge Utility Dist., Signal Mountain, water sys. for Summertown-Fairmont areas. **$300,000.** L. A. Schmidt, Jr., Chattanooga Bank Bldg., Chattanooga, consult. engr.

Tex., Anahuac—City, voted bonds, 8 in. mains, etc. **$175,000.** J. Thomas Kelley, 1506 Lawrence St., Houston, consult. engr. CD 9/26.

Tex., Tyler — City, Tyler, voted $175,000 bonds, water distr. sys., **$325,000; $100,000** bonds filtration plant, **$400,000.** Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 8/8.

B. C., Enderby—City, City Hall, WW sys. **$178,000.**

Ont., Brantford—Pub. Utilities Comn., E. L. Gothard, secy., increasing 7½ m.g. water da'ly 500,000 gal. water storage tank, etc. Approx. **$400,000.** Gore & Storrie, 1130 Bay St., Toronto, engrs.

SEWERS, WASTE DISPOSAL

Ark., Marianna—City, voted **$285,000** bonds, sewerage sys. of various size, disposal plant with auxiliaries, appurtenances, Max A. Mehlburger, Pyramid Bldg., Little Rock, consult. engr. CD 9/16.

Calif., Merced—City, City Hall, **$250,000** bond election Nov. 8, sewage treatment plant, G. E. Winton, City Hall, city engr. CD 9/30.

Calif., Pittsburg—City, City Hall, **$650,000** bond election Nov. 8, sewage treatment plant, E. L. O'Hara, City Hall, city engr. CD 1/6/47.

O., Troy—City, revamp sewerage sys. **$390,000.**

●**Ga., Dalton**—City, sanitary sewerage sys. **$1,722,000.** Wiedeman & Singleton, P. O. Box 1868, Atlanta, consult. engrs.

Kan., Topeka—City, sewers in Highland Park Dist. **$360,000.** W. C. Baldry, city engr. CD 11/16/44.

Tex., Eagle Lake—City, voted bonds Oct. 1, enlarging sanitary sewerage sys. **$310,000.** The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, consult. engrs. CD 9/30.

Tex., Texas City—City, sewage treatment plant, **$750,000;** interceptor line, **$196,000.** Joe J. Rady, 811 American Fidelity Bldg., Fort Worth, engr. CD 9/22, under LB.

Tex., Tyler—City, Tyler, voted $70,000 bonds, disposal plant, **$270,000; $85,000** bonds sewer trunk lines, **$385,000.** Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 8/8.

BRIDGES

Ia., Des Moines—State of Iowa, Chicago, Rock Island & Pacific R.R. Co., F. W. Thompson ch. engr., La Salle St. Station, Chicago 5, Ill. and City of Des Moines, viaduct on E. 20 St. **$800,000.** John Tippee, Des Moines, city engr.

North Carolina—State Hy. & Pub. Wks. Comn., Raleigh.

New Hanover Co.—bridge, approaches on U. S. 117 over Northeast Cape Fear River near Castle Hayne, Prof. 3562. **$400,000.** T. B. Gunter, Jr., c/o owner, bridge engr.

Ont., Toronto—Municipality, bridge, Cherbourne St., **$800,000.** M. Stewart, city engr.

STREETS AND ROADS

●**New York**—Dpt. Pub. Wks., Alfred E. Smith Memorial Bldg., Albany.

Cortland Co.—5.3 mi. arterial highway in Cortland, incl. 0.7 mi., two 24 ft. roadways with mall separation, construct bridges and stream channel straightening, Church St. Ext. from north city line to Grant St., **$549,000;** 44 ft. pavement with necessary street intersections, 0.2 mi. Church St. from Grant St. to Clinton Ave., **$103,000;** 44 ft. pavement with necessary street intersections 0.9 mi. Port Watson St. from Church St. to East City line, **$360,000;** 40 ft. pavement with necessary street intersections 1.1 mi. Groton Ave. from west city line to Church St. **$387,000;** two 32 ft. roadways with mall separation 0.3 mi. Church St. from Clinton Ave. to Port Watson St., **$150,000;** 44 ft. pavement with necessary street intersections 0.6 mi. Clinton Ave. from Church to Pomeroy Sts., **$209,000;** 24 ft. pavement with 10 ft. shoulders 0.6 mi. Fisher Ave. from Route 281 to north city line, **$193,000;** 24 ft. pavement with 10 ft. shoulders 0.3 mi. Groton Ave. from Route 281 to west city line, **$66,000.** Total cost $2,019,000.

Fulton Co.—13.4 mi. arterial route for Johnstown and Gloversville, incl. 24 ft. pavement 2 mi. Route 148 By-Pass Gloversville to from Johnstown-Gloversville Corporation line northeasterly on new location to point approx. 1,300 ft. northeast of Steele Ave. **$292,900;** 50 ft. pavement with curbs, from approx. 1,300 ft. northeast of Steele Ave. northeasterly on new location and along Saratoga Blvd. to E. Fulton St. **$307,800;** 50 ft. pavement with curbs, 0.7 mi. from E. Fulton St., northerly along East Blvd to North Blvd.; **$231,200;** 46 ft. pavement with curbs 0.2 mi. from North Blvd. northerly along University St. to Newman Co., **$76,300;** 24 ft. pavement with shoulders, channelized intersection at E. State St., 0.2 mi. from Newman St. northeasterly on new location to Gloversville East Boundary at E. State St., **$50,800;** East-West Arterial, 24 ft. pavement with shoulders, 0.4 mi. from Gloversville West corporation line at Route 29A, easterly on new location to McNab Ave. at Spring St. **$37,100;** 32 ft. pavement with curbs, 1.6 mi. from McNab Ave. easterly along Spring St. and Prospect Ave. to Route 148 By-Pass at East Blvd., **$549,600;** 32 ft. pavement with curbs from Route 148 By-Pass at East Blvd. westerly along Second Ave., Grand St., Curtis St., and its extens. to Spring St. east of McNab Ave., **$529,700;** Route 148 By-Pass Johnstown, 24 ft. roadway with shoulders 0.5 mi. from southerly corporation line at Chestnut St. northeasterly on new location to South Perry St., **$77,100;** 40 ft. roadway with curbs, connect Glebe and Fon Claire Sts. to Arterial Route, 0.9 mi. from S. Perry St. northeasterly on new location to E. State St. **$286,800;** 40 ft. roadway with curbs, incl. 40 ft. roadway along E. State St. from By-Pass to east city line 0.8 mi. from E State St. northerly on new location and right of ways of abandoned Cayadutta Electric R. R. to approx. 500 ft. north of Briggs St., **$312,100;** 24 ft. pavement with shoulders 0.5 mi. from 500 ft. north of Briggs St. northerly on new location and or right of ways of abandoned Cayadutta Electric R. R. to approx. 500 ft. north of Townsend Ave., **$72,600;** 24 ft. pavement with shoulders, 0.2 mi. from approx. 500 ft. north of Townsend Ave. northerly on new location to point approx. 1,600 ft. southwesterly of Johnstown-Gloversville corporation line, **$37,700;** 24 ft. pavement 0.3 mi. from approx. 1,600 ft. southwesterly of the Johnstown-Gloversville corporation line, northeasterly on new location to the corporation line, **$41,200;** Briggs Street Arterial, 24 ft. pavement with shoulders 0.5 mi. from West corporation line at Route 29, easterly on new location to Pleasant Ave., **$83,500;** 40 ft. pavement with curbs and bridge across Cayadutta Creek 0.7 mi. from Pleasant Ave., easterly on new location to Baker St. along Baker and Briggs St. to Route 148 By-Pass, **$332,400;** 24 ft. pavement and service road connections at N. East Ave., 0.4 mi. from Route 148 By-Pass, easterly along Briggs St., northeasterly on new location and along North East Ave. to East Corporation line, **$70,500;** Highway Connections Outside Cities to Arterial Routes in Gloversville-Johnstown Area, pavement with shoulders and channelize intersection 0.1 mi. connections to Route 148 By-Pass at East City Line from Route 148 By-Pass at East Corporation line, easterly to South Perry St. (Route 148), **$30,800;** 24 ft. pavement with shoulders 0.2 mi. connection to Route 148 By-Pass at S. East city line, from corporation line at Steele Ave., southeasterly along county road to existing State Hy. 1377 (Route 29A), **$52,800;** 24 ft. pavement with shoulders, plan requires realignment portion of Hales Mills Rd. 0.3 mi. Connection of South Kingsboro Ave. and Hales Mills Rd. with Route 148 By-Pass at Bee Intersection of the S. Kingsboro Ave. with Route 148 By-Pass and Hales Mills Rd. at the east city line, **$36,900;** 24 ft. pavement with shoulders and connection to Rose St., 0.3 mi. connection to East-West Arterial at West city line, from East-West arterial at West corporation line, westerly to existing State Hy. 246 (Route 29A), **$38,500;** 24 ft. pavement with shoulders and connection to Chestnut St., 0.2 mi. connection to Route 148 By-Pass at south city line, from Route 148 By-Pass at southerly corporation line southerly to existing State Hy. 5096, (Route 1581, **$24,100;** 24 ft. pavement with shoulders 0.3 mi. connection from Briggs St. Arterial at West City Line from Briggs St. Arterial at West Corporation line, westerly on new location to existing State Hy. 109 (Route 29), **$70,400;** 40 ft. pavement with curbs 0.1 mi. connections to East State St. at East City line, from southerly corporation line, E. State St. southeasterly along S. H. 361 to junction with State Hy. 1375 (Route 67), **$18,000.** Total $5,696,100.

●**Tex., Fort Worth**—City, W. O. Jones, mgr., and Tarrant Co., Gus Brown, judge, wid'n., paving E. 12 St. from Main St. into Riverside, **$1,500,000.** Freese & Nichols, 407 Danciger Bldg., and Joe J. Rady, 811 Insurance Bldg., consult. engrs. CD 10/11/45.

●**Newfoundland**—Government of Newfoundland, Jos Smallwood, premier, St. John's.

St. John's—hy. across island between St. John's and ferry terminus of Portoux Basques, Approx. **$8,000,000-$10,000,000.**

EARTHWORK, WATERWAYS

B. C., New Westminister—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Fraser River Imprvs. Approx. **$652,000.** R. Blais, c/o owner, engr.

B. C., Vancouver—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., dredging harbor and Fraser River. Approx. **$123,000.** R. Blais, c/o owner, ch. engr.

N. B., Saint John—Dpt. P. Wks., Hunter Bldg., Ottawa, dredging in Courtenay Bay. Approx. **$250,000.** R. Blais, c/o owner, engr.

Ont., Fort William—Dpt. P. Wks., Hunter Bldg., Ottawa, dredging in harbor. Approx. **$116,000.** R. Blais, c/o owner, ch. engr.

Ont., North Bay—Dpt. P. Wks., Hunter Bldg., Ottawa, water control imprvs. on French River. Approx. **$182,000.** R. Blais, c/o owner, engr.

Ont., Port Arthur—Dpt. P. Wks., Hunter Bldg., Ottawa, breakwater repairs. Approx. **$530,000.** R. Blais, c/o owner, engr.

AIRPORTS AND AIRBASES

Ind., Fort Wayne—TERMINAL BLDG.—Bd. Aviation Comrs., Fort Wayne, plans by A. M. Strauss, 415 Cal-Wayne St., Fort Wayne, 2 story, 65x200 ft. modern architectural style Baer Field Air Terminal Bldg. **$300,000.** CD 1/19.

Okla., Mc Alester—AIRPORT—City, bond election Nov. 29, municipal airport. **$200,000.** Rex Collins, McAlester, consult. engr. CD 9/27/48.

●**Pa., Phila.** — AIRPORT TERMINAL — City, Bureau of Aeronautics, City Hall, plans by Carroll, Grisdale & Van Alen, 1616 Walnut St., Zone 3, 3 story, rein.-con., brick aluminum, finger-tip type airport terminal, Essington Ave., International Airport. **$5,000,000.** Airways Engineering Consultants, Inc., 1212 18 St. N. W., Wash. 25, D. C., consult. engrs. CD 2/19/46.

Tex., Lubbock — RUNWAY — City, airport runway repairs. **$100,000.**

Philippines, Manila—AIRCRAFT PLANT—Philippine Air Line, Manila, aircraft overhaul plant. **2,500,000** Pesos.

LATIN AMERICA

Mexico, Mexico City—Alberto J. Pani, Hotel Reforma, Mexico, D. F., plans 500 seat roof garden theatre. **$300,000.**

Mexico, Tacuba—Al Ross Machinery, S. de R. L. Callejon de San Juanico, S. Tacuba, D. F., plans steel pipe connections factory. **$250,000.**

PUBLIC BUILDINGS

Calif., Daly City—AUDITORIUM, etc.—City, City Hall, voted bonds war memorial auditorium, recreation center. **$795,000.** Mario Ciampi, 333 Kearny St., San Francisco, archt. CD 8/25.

●**Calif., Montebello**—SCHOOL FACILITIES—Montebello Unified School Dist. 123 S. Montebello Blvd. **$3,730,000** bond election Oct. 28, school facilities. George M. Schurr, bus. mgr.

●**Fla., Jacksonville** — SCHOOLS, etc. — Duval Co. Bd. Pub. Instruction, Jacksonville, voted bonds, school in western part of city; school in Lake Shore Sect.; school in Davis St. Sect.; school in Wilder Park Sect.; school in Monterief Rd. Sect.; school in Kings Rd. Sect.; school in Biltmore Subdivision, all foregoing **$481,000** each; school at Garden City, **$290,000;** school in Southside, **$379,000;** Senior High School in western part of Jacksonville, **$881,000;** school in Northeast Springfield Area, **$290,000;** school in du Pont Sect., **$379,000;** school in Beach Sect., **$290,000;** high school in 29A1,

city's high and junior high schools. $500,000. CD 5/16/47.

Ill., Cicero—APARTMENTS—Cicero Housing Auth., Village Hall, 2517 S. 50 Ave., six 2 story apartment bldgs. $275,000.

Ill., Olney—HOSPITAL—Bd. Supers., Richland Co. Court House, $900,000 bond election Oct. 25, concrete, brick, steel hospital. CD 8/18/48, under Commercial Bldgs.

Ill., Wilmette—SCHOOL—School Dist. 39, 900 Central Ave., Millard Bell, secy., plans by Childs & Smith, 220 N. Wacker Dr., Chicago, Zone 6, steel, concrete, brick, stone Highcrest School. $250,000.

●**Kan., Wichita** — SCHOOLS — Bd. Educ., Wichita, $3,113,000 bond election, Nov. 8, schools. CD 2/4.

Ky., Bowling Green—STUDENT UNION BLDG. — Western State College, Bowling Green, plans by J. M. Ingram Citizens Bldg., Louisville, student union bldg., $500,000.

La., Lake Charles—LIBRARY—City voted bonds, library, $400,000. CD 8/25.

La., Winnsboro — SCHOOL — Parish School Bd. plans by Neild & Semdal, City Bank Bldg., Shreveport, 1 story modern school, $325,000.

●**Md., Baltimore**—COURT—City of Baltimore, Bureau Bldg. Constr., 410 Municipal Bldg., plans by James R. Edmunds, Jr., 130 W. Hamilton St., white limestone peoples court bldg., Fayette and Frederick Sts. $2,500,000. CD 2/7/45.

●**Md., Baltimore**—COLLEGE BLDGS.—State of Maryland, Dpt. P. Imprvs., 200 W. Franklin St., Baltimore, plant by Taylor & Fisher, 1012 N. Calvert St., symnasium and classroom bldg., $900,000; plans by Gaudreau & Gaudreau, 527 N. Charles St., women's dormity bldg., 11, $425,000; men's dormitory bldg. 29, $475,000. Morgan State College.

Md., Loch Raven—COTTAGES and SCHOOL—State of Maryland, Dept. P. Imprvs., 200 W. Franklin St., Baltimore, plans by Edward H. Glidden Jr., 414 Equitable Bldg., Baltimore, junior group of cotages and school bldgs., Maryland Training School for Boys, $400,000. CD 2/14/45.

Md., Owing Mills — DORMITORY, etc. — State of Maryland, Dpt. P. Wks., 200 W. Franklin St., Baltimore, plans completed by Benjamin Frank, 15 W. Franklin St., Baltimore, 2 story, bsmnt., brick, block, rein.-con. steel staff quarters, 2 dormitory bldgs., two 12 unit apartments. $475,000. James Posey, 10 E. Pleasant St., Baltimore, mech. engr.

●**Mich., Northville** — ADMINISTRATIVE — Dpt. Admin., A. N. Langius, dir., 115A State Office Bldg., Lansing, plans by O'dell Hewlett & Luckenback, 2300 Dime Bldg., Detroit, multi story, rein.-con., steel, brick, block hospital administrative bldg., $2,000,000. R. Kittle Co., 1807 Kales Bldg., Detroit, consult. engr.

●**Md., Sykesville**—MEDICAL AND SURGICAL BLDG.—State of Maryland, Dpt. P. Imprvs., 200 W. Franklin St., Baltimore, plans by Henry Powell Hopkins, 10 E. Mulberry St., Baltimore, masonry medical and surgical bldg., Springfield, State Hospital. $1,000,000.

Mich., Plymouth — SCHOOL — Bd. Educ. plans by Thomas W. Mess & Nathaniel O. Gould, 292 S. Main St., 1 story, 3 wings, steel, masonry, brick school. $350,000. CD 11/21/44.

Mich., Romulus—SCHOOL—Romulus Twp., Bd. Educ. plans by N. O. Gould & Thomas W. Moss Assoc., State Savings Bank Bldg., Clinton, 2 story, concrete, steel school addn. $350,000.

●**Mo., Springfield**—POWER GENERATING PLANT—City, Bd. P. Utilities, E. C. Rice, pres., defeated $6,500,000 bonds power generating plant, equip., 1,000 ft rein.-con. dam, James River, south of here, Burns & McDonnell Eng. Co., 95 and Troost Ave., Kansas City, Mo., consult. engr. Project indefinitely postponed. CD 6/28.

Neb., Lincoln—AGRONOMY—University of Nebraska, Lincoln, plans by Steele, Lindhaam & Steele, Electric Bldg., Omaha, agronomy bldg. for university, $850,000. CD 9/30.

●**Neb., Omaha**—HOUSING—Omaha Housing Auth., 5529 S. 30 St., 700 housing units, $2,500,000. E. W. Woodbridge, city engr.

●**N. Y., Poughkeepsie** — HOUSING — Poughkeepsie Housing Auth., 269 Mill St., plans by Kilburn, Foote & Dreyer, 420 Madison Ave., New York 17, N. Y., Housing Project NYS-46, south St. and Hudson Ave., north of Weed St. $1,500,000. CD 8/25.

N. C., Chapel Hill—SANATORIUM—State Sanatorium for Treatment of Tuberculosis, c/o D. S. Coltrane, Asst. Dir. of Budget, Revenue Bldg., Raleigh, 100 bed sanatorium. $471,250.

●**N. C., Newton**—SCHOOLS—Bd. Comrs. Catawba Co., Newton, voted bonds Sept. 28, schools, incl. 3 high schools, exten. other schools. $3,750,000.

O., Akron — COURTHOUSE, etc.—Comrs. Summit Co., Courthouse, one-mill levy will be submitted Nov. 8 election, imprv. courthouse and county jail. Approx. $500,000. CD 7/2/46.

O., Avon Lake—SCHOOL—Avon Lake Village School Dist., Village Hall, bond election Nov. 8, 1 or 2 story, bsmnt., brick school, $750,000. Fulton, Krinksy & Delamatti, 6014 Euclid Ave., Cleveland, archts. CD 11/22/48.

●**O., Cambridge**—SCHOOLS—Bd. Educ., Cambridge, $1,276,000 bond election Nov. 8, 3 schools, Lofland, Park and Garfield. $986,000.

●**O., Cleveland**—City, City Hall, Lakeside and 6 Sts., bond election November 8, widn. E. 20 St. to Gordan Park and bridge to Lake Shoreway, $3,500,000. C. J. Wenrick, city engr.

●**O., Elyria**—JUNIOR HIGH SCHOOLS, etc. Elyria City School Dist., Middle Ave., bond election Nov. 8, 2 Junior High Schools and several school addns. $3,700,000. Outcalt & Gunether & Assoc., 13124 Shaker Square, Cleveland, archts.

O., Norwalk—HOME—Comrs., Turon Co., Norwalk, $790,000 bond election Nov. 8, county home.

●**O., Parma** — SCHOOLS — Parma Bd. Educ., supt. C. Byers, 5401 W. 54 St., bond election November 8, elementary school and one senior high school, addns. to 4 other schools. $3,250,000. Fulton Kirinsky & Delamotte, 6014 Euclid Ave., Cleveland, archts. CD 5/2.

Okla., Ardmore — HIGH SCHOOL—Carter Co., Ardmore, voted bonds, Negro High School. $292,500. Hudgins, Thompson & Ball, 1100½ W. Main St., Oklahoma City, archts.

Okla., Ardmore — COURTHOUSE—Carter Co., Ardmore, voted bonds, courthouse. $270,000. Hudgins, Thompson & Ball, 1100½ W. Main St., Oklahoma City, archts. CD 8/15.

Tenn., Cleveland—HOSPITAL—Cleveland-Bradley Co., c/o Bianculli, Palm, Purnell & Bussell, archts., Chattanooga Bank Bldg., Chattanooga, hospital. $750,000. CD 1/8/47.

●**Tex., Corpus Christi**—BUILDINGS—Lamar State College of Technology, c/o Bd. Regents, Beaumont, State College of Technology. $1,000,000.

Tex., Corpus Christi—HOSPITAL—Nueces Co., Courthouse, bond election No. 8, tuberculosis hospital. $350,000. J. L. Laurence, co. engr. CD 7/11.

●**Tex., Corsicana** — HOUSING — Corsicana Housing Auth., Corsicana, plans by Boese & Harkridger, 3322 Bristol St., Fort Worth, 300 low income housing units. $2,625,000. CD 8/12.

●**Tex., Dallas**—SCHOOLS—Dallas Independent School Dist., Akard and Royal Sts., voted bonds, Peabody School, Ross Ave. and Haskell Sts., in Oak Cliff. $1,250,000; Junior High School, Cedar Springs and Inwood Rds. for northwest Dallas. $2,447,000; H. S. Thompson School, Bexar and Bethurum Sts., South Dallas. $300,000; John Neely Bryan School in Cedar Crest, Community, Easter and Deer Run Sts. $300,000; K. B. Polk School, Thedford and Bonnie View Sts. $300,000; Lakewood area School, Sondra Dr. and Lynwood Rd., $425,000; Letot School, Lemon St. near Hy. 77. $250,000; ROTC addn. to Lincoln High School, South Dallas. $250,000; Margaret B. Henderson School S. Edgefield and Melbourne Sts., in Oak Cliff, $375,000; Obadiah Knight School, Anson Rd. near Denton Dr. $250,000; Pacific Ave. School, Fletcher and Pacific Sts., near Fair Park, Richardson School, Losa Dr. near Garland Rd. $250,000; Suste Williams School, Pomona and Catawba Sts. in Bluff View area. $500,000; Urban Park School, west of Pleasant Mound. $250,000; Houle Storey Junior High School, in Oak Cliff. $450,000; J. L. Long Junior High School. $600,000; J. C. Frazier School, 4600 Spring Ave., South Dallas. $250,000; Pleasant Mound area School, Lisbon and Lisbon area School. $400,000; Stonewall Jackson School, $600,000; Walnut Hill School. $750,000; West Dallas School for Negroes. $599,500; Arcadia Park School. $700,000; Bachman's Lake area School. $450,000; Jesse Lively School, $250,000; Junior High School for East Dallas. $700,000; N. W. Harllee School, 8 and Denley Dr. in Oak Cliff. $650,000; Hillcrest High School. $298,000; Jemison School, 221 Guerin Pl. in Oak Cliff. $400,000; South Oak Cliff School. $450,000; warehouse and shop, Ervay St. site of Old Cedar Lawn School. $250,000. Mark Lemmon, 1210½ Main St., Bd. archt. CD 6/18.

●**Tex., Galveston** — HOUSING — Galveston Housing Auth., City Hall, plans by R. R. Rapp, F. Stafford & T. M. Price, Guaranty Bldg.; and D. Barthelme, 11 Wynden Dr., 600 low rental housing units. $4,200,000. CD 8/24.

Tex., Irving—SCHOOL—Irving Independent School Dist., Irving, voted bonds, masonry school. $450,000. CD 9/20.

Tex., Livingston and Corrigan—HOSPITAL—Polk Co., Courthouse, Livingston, plans by John Linn Scott, Nalle Bldg. Annex, Austin, 28 bed hospital, Livingston and 10 bed hospital at Corrigan. $300,000. CD 5/19.

Tex., Orange—HOUSING—Orange Housing Auth., c/o Ross Evans, dir., Orange, 100 low cost housing units. $875,000.

●**Tex., Tyler**—SCHOOLS—Tyler Independent School Dist., Tyler, voted bonds, masonry Dunbar (Negro) School. $275,000; gymnasium, vocational shop, bandrooms, $250,000; school, southeast sect. of city, $250,000; school, northwest area of city, $250,000; Negro school and completing high school. $300,000; masonry Negro School. $250,000. Shirley Simons, Tyler, archt. CD 7/14.

Tex., Uvalde—SCHOOLS—Uvalde Independent School Dist., Uvalde, school, $250,000; Junior High School, $300,000.

Tex., Weatherford—SCHOOL—Weatherford Junior College, Weatherford, school. $375,000.

Alta., Edmonton—GARAGE—Municipality, civic garage, $250,000 voted. A. W. Haddon, City Hall, city engr. CD 3/17.

B. C., Summerland—SCHOOL—Summerland School, D st., Summerland, plans by W. K. Noppe, 1186 Nicola St., Vancouver, 10 classroom frame Junior-Senior High School, incl. combined cafeteria-auditorium, home economics, manual arts and administration section. $340,000.

Ont., Oshawa—SCHOOL—Bd. Educ., W. G. Bunker, bus admin., Centre St., plans by J. B. Parkin Assoc., 717 Church St., Toronto, school in northeast section of city. Approx. $250,000. CD 1/15/47.

COMMERCIAL BUILDINGS

Colo., Denver—SCHOOL—Parish of St. Dominics, Very Rev. Peter O'Brien, pastor, 2905 Federal Blvd., plans by John K. Monroe, 400 Security Life Bldg., 2 story, bsmnt., 75x150 ft., brick, stone school. Approx. $250,000.

●**Colo., Pueblo**—RESIDENCES—Spurr Homes, Inc., Mark S. Waggener, pres., 604 Mining Exchange Bldg., Denver, 800 one story residences. $1,500,000.

D. C., Wash.—SCHOOL ANNEX—Blessed Sacrament School, 5941 Chevy Chase Parkway, 6 classrooms, social hall, office, library clinic and meeting rooms new school annex. $300,000. Murphy & Locraft, 1518 P St. N.W., archts.

Fla., Daytona Beach—HOTEL—H. Jackson Green, Daytona Beach, hotel. Approx. $300,000.

Ill., Chicago — CHURCH, etc. — Franciscan Fathers, 110 W. Madison St., Zone 3, plans by Vitzhum & Burns, 4 N. La Salle St., Zone 2, 4 story, bsmnt., church and friary. $700,000. CD. 1/23/46.

●**Ill., Hinsdale** — SHOPPING CENTER — Owner, c/o Hinsdale Federal Savings & Loan Assn., 8 E. Hinsdale Ave., plans by Hubert & Hebb, 306 W. Chicago Ave., 1 and 2 story shopping center, parking lot. $1,100,000.

Ind., Hammond—HOSPITAL—Sisters of St. Francis Saraph of the Perpetual Adoration, 25 Douglas St., plans completed by Bachman & Bertram, 5116 Hohman Ave., 2 story, bsmnt., 43x103 ft., brick, stone, rein.-con. hospital addn. $250,000.

Ind., Richmond—SCIENCE—Earlaham College, E. Main St., plans by Vincent G. Kling, 917 Corinthian Ave., Philadelphia, 30, Pa., 3 story, 39x55x80x174 ft., brick veneered concrete blocks, structural steel science bldg. $250,000. CD 1/16/47.

Md., Baltimore—TUBERCULAR—Associated Jewish Charities, J. Benjamin Katzner, pres., Monument and Eutaw Sts., plans by James R. Edmunds, Jr., 130 W. Hamilton St., 2 story, bsmnt., brick, steel, limestone, Mt. Pleasant Tubercular Patients bldg. $750,000. Henry Adams, Inc., 2315 St. Paul St., mech. engr., Crout, Snyder, Crandall, P.E. Lexington St., structural engr. CD 2/27/47.

●**Md., Baltimore**—CATHEDRAL, etc.—Catholic Archdiocese of Baltimore, Archbishop's Residence, Charles and Mulberry Sts., cathedral, cathedral rectory, school and convent, Charles St. Ave., $8,000,000.

Md., Baltimore—CHURCH and RECTORY—Shrine of the Little Flower, Rev. George J. Larkin, 2849 Brendan Ave., plans by Murphy & Locraft, 1518 P St. N.W., Wash. D. C., and John E. Lyring, 810 S. Conkling St., 2½ story steel stone church; plans by John F. Eyring, 810 S. Conkling St., 2½ story, brick, steel rectory incl. office, recreation room and laundry. $250,000.

Md., Bethesda—DEPARTMENT STORE—Woodward & Lothrop, 10, 11, F and G Sts. N.W., Wash., D. C., plans by Starrett & Van Vleck, 267 5 Ave., New York, N. Y., 2 story bsmnt., 136x196 ft. brick, limestone, concrete, steel branch department store, Wisconsin and Western Aves.

Md., Rockville—HOUSING—Owner, c/o John Spence, archt., 3221 Oliver St. N.W., Wash., D. C., 2 and 3 story, brick, cinder block apartments, Dawson and N. Adams Sts.

Md., Towson—CHILDREN'S VILLAGE, etc. —Catholic Archdiocese of Baltimore, Archbishop's residence, Charles and Mulberry Sts., Baltimore, children's village and aged folks home, incl. vocational farm and parochial school, 180 acre site, Dulany Valley Rd., near here.

Mass., Dorchester—RESIDENCE, etc.—Boston College High School, 21 St. James Ave., Boston, plans by Maginnis & Walsh, 126 Newbury St., Boston, 2 story, bsmnt., brick, stone faculty residence and auditorium, Old Colony Blvd., Approx. $250,000.

●**Mass., Spencer**—MONASTERY — Cistercian Abbey of Our Lady, Fr. Alderic, Cumberland, R. I., plans by Maginnis & Walsh, 126 Newbury St., Boston, monastery, Alta Crest Farm. $1,000,000.

●**Minn., St. Louis Park**—HOUSING—Garden Apartment Project, H. H. Bank, atty., 1012 Andrus Bldg., Minneapolis, plans by E. Gerber, 1180 Raymond Blvd., Newark, N. J., 46 bldgs. between Minnetonka Blvd. and W. 31 St., west of Belt Line. $1,500,000. CD 9/12.

Mont., Havre—HOUSING—Havre Housing Corp., Havre, 50 dwellings, $350,000.

●**N. Y., New York**—OFFICE—Lever Bros. Co., 50 Memorial Dr., Cambridge, Mass., plans by Skidmore, Owings & Merrill, 5 E. 57 St., Zone 22, 20 story office, Park Ave. between 53 and 54 Sts. $6,000,000.

N. D., Park River—HOSPITAL—St. Ansgar's Hospital, Park River, hospital addn. $350,000.

O., Cleveland—APARTMENTS—Alexis E. Meade, genl. mgr., 1252 Ramona Ave., Lakewood, plans by Henry C. Grieme, 35 N. Main St., Chagrin Falls, 4 or 5 brick apartments, near Frisket and Lorain Ave. **$550,000.**

O., Columbus—SHOPPING CENTER—Olentangy-North Broadway Improvement Assn., c/o Thomas Applegate, 17 S. High St., drivein neighborhood shopping center on 8-acre tract, Olentangy River Rd., north of Union Cemetery and south of West North Broadway. Approx. **$750,000.**

O., Columbus—MEDICAL CLINIC—Raymond S. Reinert, c/o Warner P. Simpson Co., 168 W. Spring St., plans by W. A. Warner, 160 W. 2 Ave., medical clinic, Olentangy River Rd. near West North Broadway. **$250,000.**

S. D., Pierre—HOSPITAL—St. Marys Hospital, Pierre, hospital addn. **$750,000.**

Tex., Beaumont—SHOPPING CENTER—M. L. Leffler Jr. & Assoc., Beaumont, plans by Robert W. Clements & Assoc., 4110 Dennis St., Houston, shopping center, laundry plant, asph. paved area for center. **$275,000.** CD 9/23.

Tex., Dallas—APARTMENT—Edward T. Dicker, 101 Laurel Land Rd., 12 story, bsmnt., masonry, concrete, steel apartment, concrete pier and beam fdn. **$500,000.**

Tex., Dallas—CHURCH, SUNDAY SCHOOL —Munger Place Methodist Church, 5200 Bryan St., plans by Broad & Nelson, Burt Bldg., 2 story, steel, brick church, sunday school, concrete slab fdn. **$375,000.**

Tex., Houston—HOUSING—Draper Contr. Co., Kress Bldg., addnl. housing on Sect. 4, of Santa Rosa addn. **$250,000.**

Wyo., Cheyenne—SCHOOL—St. Mary's Parish, Cheyenne, plans by John K. Monroe, engr. and archt., 810 14 St., Denver, Colo., 15-room school. Approx. **$400,000.**

Alta, Edmonton—THEATRE—Famous Players Theatres, Royal Bank Bldg., Toronto, Ont., plans by E. A. Zorn, c/o Famous Players Theatres, Ltd., Winnipeg, Man., downtown theatre, Jasper Ave. **$750,000.** CD 9/25/46.

N. B., Notre Dame de Kent—CHURCH—Roman Catholic Parish of Notre Dame, c/o Bishop H. Rohichaud Moncton, plans by Levesque & Venne, 130 Turnbull Ave., Quebec City, Que., church. **$250,000.** CD 1/2/47.

●**Ont., Eastview**—HOSPITAL—Reverend Sisters of Windsor, Eastview, hospital, Montreal Rd., approx. 1 mi. east of here. Approx. **$2,000,000.**

●**Ont., Toronto**—OFFICE—Manufacturers Life Insurance Co., 200 Bloor St. E., plans by Marani & Morris, 1256 Bay St., 12 story 100x150 ft. office bldg. addn., air-conditioned. Approx. **$2,500,000.**

Que., Almaville—NOVICIAT—African Mission Society, c/o Rev. Father S. Harrington, Almaville, noviciat. **$300,000.**

Que., Malartic—CHURCH—Roman Catholic Parish of St. Martin, Malartic, plans by Jean & Dupere, 2 Abraham Hill, Quebec City, 55x170 ft., rein.-con., stone church. **$250,000.**

Que., Marsboro—CHURCH—Roman Catholic Parish of St. Rene Goupie, c/o Reverend L. Guirton, Marsboro, concrete stone church. **$250,000.**

Que., Quebec City—MEDICAL ARTS—Dr. J. A. Tardiff, 1 Avenue Begin, Quebec City, 10 story, rein.-con., steel brick, stone medical arts bldg., Blvd. Charest. Approx. **$350,000.**

Que., Shawinigan Falls—CHURCH—Roman Catholic Parish of St. Croix, c/o Bishop Pelletier, Three Rivers, church and presbyty. **$250,000.**

Que., Sherbrooke — SCHOOL — Parish of Notre Dame du Perpetual Secours, and School Comm., M. Vigneault, secy., Sherbrooke, plans by L. Adjutor, 22 Prospect St., school, Dominion and Ontario Sts. Approx. **$250,000.**

Sask., Lloydminster—STORE—T. Eaton & Co., Ltd., Yonge St., Toronto, Ont., department store. **$250,000.**

INDUSTRIAL BUILDINGS

●**Idaho, Coeur d'Alene**—MILL—Idaho-Montana Pulp & Paper Co., Missoula, Mont., pulp mill. **$5,000,000.**

Md., Baltimore — BAKERY — Owner, c/o Frank Green, archt., 8520 Germantown Ave., Phila., Pa., bakery and store. **$150,000.**

Miss., Tupelo — Bakery — P. H. Hardin, Tupelo, bakery. **$250,000.**

Mo., St. Louis—PLANT, etc—J. D. Streett & Co., K. C. Baker, pres., 4655 Park Ave., Zone 19, plant and petroleum storage facilities, three 1 story bldg. addns., 90x100 ft., 45x114 ft. and 60x102, ft. respectively; river dock facilities and railroad sidings, Jefferson Barracks between Missouri Pacific R.R. tracks and Mississippi River. **$1,000,000.**

Neb., Beatrice—GRAIN ELEVATOR—Aller & Pease Grain Co., Beatrice, grain elevator. **$100,000.**

O., Maumee—GRAIN ELEVATOR—Harold Anderson, Maumee, 500,000 bu., concrete grain elevator. **$250,000.**

●**Tex., Anson**—PLANT, etc.—North American Oil Consolidated, and Ungren & Frazer, Anson, gasoline plant and gas injection sys. **$1,750,000.**

Tex., Dallas—AUTO STORAGE—Rio Grande Auto Park, c/o E. L. Norton, 1201 Pacific St., remodeling, expanding 4 story bldgs. into 350 auto storage parking and service, masonry constr. **$125,000.**

Tex., Sinton—COTTON GIN PLANT—Sinton Co-operative Gin Co., M. A. Broughton, pres., Sinton, metal type cotton gin plant. **$160,000.**

Wash., Burlington—DAIRY—Skagit County Dairymen's Assn., Mount Vernon, bottling works dairy addn. **$100,000.**

Wis., Milwaukee — WAREHOUSES — Omar, Inc., 1910 Harney St., Omaha, Neb., project abandoned 2 branch warehouses, **$250,000.** Luria Eng. Co., 500 Fifth Ave., New York, N. Y., consult. engrs. CD 8/25.

Alta., Edmonton — WAREHOUSE — Alberta Co-operative, Wholesale Assn., Ltd., 121 St., concrete, steel, brick warehouse. **$225,000.**

Alta., Edmonton—STOCK YARDS—Western Stockyards Ltd., Edmonton, stock yard addns., alterations **$200,000.**

B. C., Vancouver—WAREHOUSE, etc.— Firestone Tire & Rubber Co. of Canada Ltd., 1012 Hornby St., warehouse and office. **$250,000.**

Man., East St. Paul — OIL REFINERY — Imperial Oil Ltd., 56 Church St., Toronto, Ont., oil refinery. Approx. **$500,000.**

Ont., Iroquois Falls — GRINDER ROOM, etc. —Abitibi Power & Paper Co. Ltd., Fort William, grinder room and screen room, Approx. **$100,000.**

Ont., Sault Ste. Marie — PLANT — Abitibi Power & Paper Co. Ltd., Fort William, plant to manufacture sodium sulphite, Approx. **$500,000.**

Ont., Sault Ste. Marie—PLANT—Chromium Mining & Smelting Co., 395 Queen St., Sault Ste. Marie, reconstruction smelting plant, **$100,000.**

Ont., Smooth Rock Falls—SCREEN ROOMS —Abitibi Power & Paper Co. Ltd., Fort William, renovation screen rooms, Approx. **$150,000.**

Ont., Toronto—WAREHOUSE, etc.—Dominion Stores, Ltd., 832 Weston Rd., plans by Riddle & Connor, 422 Wellington St., London, 1 story, bsmnt., 149x180 ft., structural steel, concrete block warehouse and store, Dundas St., concrete block fdn., mastic tile floors. Approx **$220,000.**

Que., Montreal — WAREHOUSE — E. Carriere, Inc., 5200 Henri Julien St., plans by P. Brassard, 1440 W. Ste. Catherine St., 3 story, concrete, brick warehouse. **$200,000.**

Que., Montreal — PLANT — Viau Ltd., 4951 E. Ontario St., factory addn., to A. Gratton, Inc., 3440 Shuter St. Approx. **$200,000.**

Sask., North Battleford — OIL REFINERY —Angus W. MacPherson & Assoc., Saskatoon, oil refinery, site west of Provincial owned power plant, Approx. **$500,000.**

UNCLASSIFIED

Calif., Daly City—PARKS—City, City Hall, voted **$100,000** bonds parks. R. A. Klassen, 2382 Broadway, Redwood City, engr. CD 8/25.

Ga., East Point—ELECTRICAL SYSTEM—City, East Point, voted bonds electrical system improvs. $150,000. CD 9/8.

Ill., Effingham—SWIMMING POOL—The Effingham Park Dist., R. M. Michaelree, secy., voted **$110,000** bonds, swimming pool, auxiliaries, etc., Effingham Community Park. CD 8/29.

Indiana—RURAL DISTRIBUTION LINES—Southeastern Indiana Rural Electrification Membership Corp., Cotwood, 93 mi. rural distr. line and sys. improvs., Ripley Co. **$455,000.** CD 10/28/48.

Indiana—RURAL DISTRIBUTION LINES—Utilities District of Western Indiana Rural Electric Membership Corp., Monticello, 1229 mi. rural distr. lines and sys. improvs., Greene Co., **$270,000.**

Iowa — RURAL DISTRIBUTION LINES — Cherokee County Rural Electric Co-operative, Cherokee, 16 mi. rural distr. lines and sys. improvs., Cherokee Co. **$100,000.** Brown Eng. Co., K P Bldg., Des Moines, consult. engr.

Kansas—RURAL DISTRIBUTION LINES—Norton-Decatur Co-operative Electric Co., Norton, rural distr. lines in Decatur, Graham, Norton, Phillips, Rooks and Sheridan Counties, **$950,000.** Raymond H. Reed & Co., Columbus, Neb., consult. engrs.

Kansas—RURAL DISTRIBUTION LINES—Sedgwick County Electric Co-operative Assoc., Inc., Cheney, 60 mi. rural distr. lines and sys. improvs., Sedgwick Co., **$117,000.**

Kansas—RURAL DISTRIBUTION LINES—Western Co-operative Electric Assn., Wakeeney, rural distr. lines, Ellis, Gove, Ness, Sheridan and Trego Counties. **$660,000.** Frank Horton & Co., Lamar, Mo., consult. engrs.

La., Baton Rouge—FIRE ALARM SYSTEM—City, fire alarm sys. Approx. **$100,000.** Porter, Barry & Switzer, 211 Main St., consult. engrs.

La., Lake Charles — PARKS, PLAYGROUNDS, etc.—City, City Hall, voted bonds, municipal parks, playgrounds, **$115,000;** swimming pool, **$85,000;** recreational bldg. units, **$300,000.** CD 9/16.

●**Md., Baltimore**—TROTTING TRACK—Baltimore Trotting Races Inc., Eugene H. Beer, pres., Chamber of Commerce Bldg., Baltimore, trotting track, grandstand, club house, jockey quarters, stables, barns, near here, **$1,500,000.** Saxe, Gwilliar & Robertson, 130 W. Hamilton St., engrs.

Md., Baltimore—SWIMMING POOL—City, Dpt. Parks & Recreation, Druid Hill Park, 42x75, 41x67 and 75x175 ft. concrete swimming pool, Druid Hill Park, Turpin, Wachter & Assoc., 1904 N. Charles St., engrs. CD 12/5/47.

Neb., Hastings — SWIMMING POOL — City, voted bonds, swimming pool. **$125,000.** CD 9/8.

New Mexico — RURAL DISTRIBUTION LINES—Central Valley Electric Co-operative, Inc., Artesia, 253 mi. rural distr. lines and sys. improvs., Eddy Co. **$865,000.** CD 6/3/48.

O., Warren—PUBLIC HALL—City, 2,500 seating capacity public hall at Packard Park. **$700,000.**

Oklahoma — PIPELINE — Consolidated Gas Utilities Corp., Braniff Bldg., Oklahoma City, 28 mi. 12¾ in. pipeline from Carpenter Station on main line to point north in the field, Elk City area, Beckham and Washita Counties. **$150,000.** CD 8/25, under Okla., Elk City.

●**Oregon**—RURAL DISTRIBUTION LINES—Columbia Power Co-operative Assoc., Long Creek, 582 mi. rural distr. lines, 125 mi. 66 kv rural distr. lines and sys. improvs., Wheeling Co. **$2,250,000.**

Tennessee—RURAL DISTRIBUTION LINES —Lincoln County Electric Membership Corp., Fayetteville, 70 mi. rural distr. lines and sys. improvs., Lincoln Co., **$460,000.**

Texas—PIPELINE—Continental Pipe Line Co., 1000 S. Pine St., Ponca City, Okla., reconstructing 25 mi. 10 in. pipeline from vicinity Archer City to vicinity Wichita Falls, Archer and Wichita Counties. **$150,000.**

Texas—NATURAL GAS LINE—Kerr-McGee Oil Industries, Inc., Dumas, 18 mi. 10 in. natural gasoline to Phillips Chemical plant at Etter, Moore and Sherman Counties. **$180,000.**

Texas—RURAL DISTRIBUTION LINES—Mid-South Electric Co-operative Assoc., Navasota, 93 mi. rural distr. lines and sys. improvs., Grimes Co. **$210,000.**

Texas—OIL PIPELINE—Stanolind Pipe Line Co., Stanolind Bldg., Tulsa, Okla., 6,100 lin. ft. 3 in. and 37,000 lin. ft. 4 in. crude oil pipelines gathering sys., 3 pumping units, in Dean area of Levelland pool, Cochran Co. **$125,000.**

Tex., Anahuac—GAS SYSTEM—City, voted bonds, natural gas sys. **$125,000.** J. Thomas Kelley, 1506 Lawrence St., Houston, consult. engr. CD 9/23.

●**Tex., Beaumont**—COLISEUM—City, **$2,000,000** bond election Nov. 8, coliseum. Stone & Pitts, 1872 Calder St., archts. R. C. Black, city engr. CD 9/23.

Tex., Corpus Christi—WHARF—Southwestern Oil & Refining Co., c/o Port and Sumners Sts., and Pontiac Refining Corp., 3400 Lawrence Dr., wharf on canal, incl. dredging. **$100,000.**

Tex., Goliad—PARK—State Park Bd., State of Texas, Austin, restoring, improv., expanding Goliad State Park. **$200,000.**

Tex., San Antonio—GAS LINES—City Public Service Bd., 201 N. St. Marys St., Proj. 1, 17,000 lin. ft. 16 in. natural gas pipeline, North St., Cloud Rd. out Donaldson, **$90,000;** Proj. 2, 8,200 lin. ft. 8 in. feeder mains and 17,800 lin. ft. 2- to 8-in. natural gas distr. lines on south side, **$115,000;** Proj. 3, 12,500 lin. ft. 16 in. natural gas lines, Clark Ave. **$65,000.** W. D. Burk, c/o owner, engr.

●**Virginia**—GENERATING PLANT and RURAL DISTRIBUTION LINES—Old Dominion Power Co-operative, Chase City, 34,500 kw. steam generating plant on James River, near Scottsville, 388 mi. rural distr. lines, substations and other generating facilities, Charlotte Co. **$14,320,000.**

Wyoming—RURAL DISTRIBUTION LINES Niobrara Electric Assoc., Inc., Lusk, 504 mi. rural distr. lines, more house facilities and sys. improvs., Niobrara Co. **$730,000.** Floria Eng. Co., 1717 E. Colfax St., Denver, Colo. consult engr. CD 6/21/48.

Alta, Edmonton — SWIMMING POOLS — Municipality, swimming pools for 1250 construction. **$300,000.** A. W. Haddon, City Hall, city engr.

B. C., Roberts Creek—HARBOR IMPRVS.— Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., harbor imprvs., Approx. **$100,000.** R. Blais, c/o owner, engr.

B. C., Squamish—WHARF—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., assembly wharf, Approx. **$100,000.** R. Blais, c/o owner, engr.

Ont., Ottawa—WIND TUNNEL—National Research Comn., Sussex St., plans by G. Brault, Dpt. P. Wks., Ottawa supersonic wind tunnel, (Eastview), Approx. **$275,000.**

Ont., Owen Sound—HARBOR WALL—Dpt. P. Wks., Hunter Bldg., Ottawa, harbor wall, Approx. **$100,000.** R. Blais, c/o owner, engr.

Ont., Port Credit—HARBOR IMPRVS—Dpt. P. Wks., Hunter Bldg., Ottawa, harbor imprvs. Approx **$152,000.** R. Blais, c/o owner, engr.

Ont., Toronto—HARBOR IMPRVS—Dpt. P. Wks., Hunter Bldg., Ottawa, harbor imprvs. Approx. **$275,000.** R. Blais, c/o owner, engr.

Ont., Toronto—ATHLETIC FIELDS—Municipality, 2 athletic fields. **$300,000.** M. Stewart, city engr. CD 7/20/44.

Que., St. Jerome — ARENA — Municipality, arena. **$200,000.** L. Nicolas, 298 Labella St., archt. A. Morin, St. Jerome, engr. CD 3/18/46.

Sask., Regina—CAR BARNS—Municipality, Regina, completing street car barns, **$227,000.** D. A. R. Mc Cannal, city engr.

Proposal Advertisements see pp. 82 & 83

OFFICIAL PROPOSALS

Bids: October 24, 1949 (402)

Water Main Construction

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 693-W

Sealed proposals for constructing approximately 10,000 feet of 42-inch Force Main from Rocky Gorge Pumping Station to Wilis School Filtration Plant near Laurel, Maryland, will be received at the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, until Monday, October 24, 1949 at 1:00 P. M., Eastern Standard Time, at which place and time they will be publicly opened and read. Alternate bids are asked on cast iron, steel, reinforced concrete prestressed, and reinforced concrete cylinder pipe.

Plans and specifications may be obtained from the office of the Chief Engineer of the Commission, Hyattsville, Maryland, upon deposit of $10.00, which deposit will be returned to bidders or to those returning plans and specifications in good condition.

Dwight B. Galt
Warren Browning
Leland G. Worthington
Commissioners

Bids: November 1, 1949 (403)

Construction of Route 29-A

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 29-A, SECTION 3

Construction of Route 29A, Section 3, from Stockton to Raven Rock, Hunterdon County, length 3.0 miles.
Estimated:
50,000 cu. yds. Roadway Excavation—Earth
20,000 cu. yds. Roadway Excavation—Rock
38,000 sq. yds. 3" Pen. Mac. Surface on 4" Macadam Base Course

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Tuesday, November 1, 1949, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: November 9, 1949 (382)

Construction of Pumping Station, Pumping Equipment and Intercepting Sewers

Sealed proposals will be received by the Board of Contract and Supply of the City of Binghamton, N. Y., until 3:00 P.M. on Wednesday, November 9th, 1949, at its office in the Municipal Building and at which time and place the same will be opened and publicly read embracing the following Contracts:

1. Contract No. 5—General Contract Pennsylvania Ave. Pumping Station.
2. Contract No. 6—Pumping Equipment
3. Contract No. 7—Electrical Equipment
4. Contract No. 8—Plumbing Equipment
5. Contract No. 11C—Intercepting Sewers including River Crossing

Copies of drawings, specifications and other contract documents may be examined at the office of the City Engineer, City Hall, Binghamton, N. Y. and complete sets of such documents may be obtained upon the payment of $35.00 as a deposit for each set. If the documents are returned in good condition within thirty (30) days following award of this contract, $25.00 of the deposit for each set will be returned to each actual bidder; and $15.00 of the deposit for each set will be returned to each non-bidder, the balance being retained to defray the actual cost of reproduction of the sets of documents.

These proposals must be sealed and properly marked on the outside to indicate the contents and each shall be accompanied by a certified check or New York draft to the order of Everette E. Allen, Comptroller, or cash in the sum of five percent (5%) of the total amount of the proposal which amount will be held by the City without interest as a guarantee that the party or parties whose bid is accepted will enter into a contract and furnish a bond with security satisfactory to the Mayor in the sum of fifty percent (50%) of the amount of the contract.

The City of Binghamton reserves the right to reject any or all bids if such action is for the best interests of the City.

J. A. GILES, Acting Secretary,
Board of Contract and Supply.

Bids: November 7, 1949 (405)

Clearing Rondout Reservoir

CONTRACT 345

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall street, New York City, until 11:00 A.M., Eastern Standard Time, on Monday, November 7, 1949, for Contract 345, for clearing approximately 900 acres below Elevation 760 in the lower portion of the Rondout reservoir in preparation for the storage of water, all as set forth in the specifications. The Rondout reservoir is located in the Towns of Wawarsing, Ulster county, and Neversink, Sullivan county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of sixteen thousand dollars ($16,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, HENRY HESTERBERG, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: November 17, 1949 (406)

Central Relief Drain Ext.-South

CONTRACT NO. 87

Sealed Bids will be received by the Louisville and Jefferson County Metropolitan Sewer District at its office located at 414 West Jefferson Street, Louisville, Kentucky, until 12 o'clock noon, Thursday, November 17, 1949, for the construction of the Central Relief Drain Extension—South, Contract No. 87.

The Contract will provide for the construction of approximately 7000 feet of drain pipes varying in sizes from 60-inch to 21-inch in open cut excavation and necessary appurtenant relief structures, junction chamber and manholes.

An alternate bid will also be taken to do the foregoing construction of the same total length except approximately 1200 feet of 54-inch precast drain would be constructed in Tunnel.

Plans, Specifications and Information for Bidders will be furnished to prospective bidders upon deposit of $50.00 on or after October 21, 1949. This deposit will be refunded upon the return of Plans and Specifications after the Contract is awarded.

Each bid must be accompanied by a certified check drawn on a Louisville or New York Bank payable to the District in the amount of $30,000.

The right is reserved to reject any or all bids or waive any informality in any bid and to accept any proposal considered by the District to be on the whole, the best.

NORVIN E. GREEN
Chairman of the Board

MORRIS FORMAN
Chief Engineer

(Continued on page 83)

Notice to Advertisers

Because of the Holiday, Election Day, November 8th, the "Searchlight" pages of the

November 10th Issue of

ENGINEERING NEWS-RECORD

close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

FINAL CLOSING TIME

Displayed & Undisplayed Ads, Friday, October 28th

Proposals, Thursday, November 3rd

OFFICIAL PROPOSALS
(Continued from page 82)

Bids: November 1, 1949 (383)

Intercepter

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF FINANCE
DIVISION OF PURCHASES

NOTICE TO SEWER CONTRACTORS

Sealed bids for constructing BLACKSTONE VALLEY INTERCEPTER, Sec. B., in Pawtucket, Rhode Island, will be received at office of State Purchasing Agent, State House, Providence until 10:00 a.m., Eastern Standard time on November 1, 1949 and publicly opened and read at that time.

Project involves 4,010 ft. of 60-in. sewer including approximately 2,565 ft. in tunnel, 3,730 ft. of 54-in. sewer, 265 ft. of 6-ft. 0-in. by 3-ft. 0-in. sewer, 535 ft. of 15-in. sewer, and appurtenant work.

Drawings and contract documents may be seen at above office or office of Blackstone Valley Sewer District Commission, State Office Building, or Metcalf & Eddy, Engineers, 1300 Statler Building, Boston, Massachusetts, weekdays except Saturdays and holidays, 8:30 a.m. to 4:30 p.m., and may be obtained from office of State Purchasing Agent on $25 deposit.

Bid Security $50,000 certified check, bid bond, or cash, performance bond 100 percent.

Prevailing wage rates and Public Work labor laws applicable.

Franklyn A. Adams
State Purchasing Agent

Bids: November 1, 1949 (404)

Planting Route 4

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

PLANTING—ROUTE 4 PARKWAY, SECS. 1D & 2G

Planting on Route 4 Parkway, Sections 1D and 2G, from New Brunswick Avenue to Port Reading Railroad, Woodbridge Township, Middlesex County. Length 2.774 miles.

Estimated: 308 units Trees—Deciduous
589 units Trees—Flowering
196 units Trees—Evergreen
6,097 units Shrubs
295 units Vines and Ground Cover

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Tuesday, November 1, 1949, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

OFFICIAL PROPOSALS

Bids: October 26, 1949 (393)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of (1) the Highway Law and special provisions therein for projects financed with federal aid funds, (2) the Public Buildings Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on October 26, 1949 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract containing 1 to 15 sheets is $5.00; 16 to 30 sheets, $10.00; over 30 sheets, $20.00. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. NICKERSON, Dist. Engr., 353 Broadway, Albany, N. Y.				
Greene	RC 49-120	Lexington-Prattsville, Pt. 2, S. H. 886	0.06	Asph. Conc. Opt. 48' I-Beam	$5,000 Plans $5	$89,000
Schenectady	FASGRC 49-121	Grade Seps. of the N. Y. C. & R. R. and Schenectady-Guilderland, S. H. 577 Proj. SG350(1); S. G.850(3)	0.27	8" Cem. Conc. Pvt., 22'-42' Wide = 0.25 mi. 8" Cem. Conc. Pavt. Widening = 0.02 mi. Pump House and Equip.	$14,000 Plans $5	$253,000
Warren	FARG 49-96	Warrensburg-Chestertown, Pt. 1, S. H. 5157 Proj. F1490(6)	0.97	8" Cem. Conc. Pavt. 24'-40' Wide = 0.95 mi. Misc. Work = 0.02 mi.	$14,000 Plans $5	$240,000
Saratoga	M-97	Erie Canal Locks, 2, 3, 4, 5, and 6	....	Furnish and Replace Lower Lock Gates and Misc. Work	$13,000 Plans $5	$257,994
		DISTRICT No. 2				
		L. KETCHUM, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Oneida	FASGRC 49-117	Elimination of Grade Crossing of the N. Y. C. R. R. with Whitesboro-Trenton, S. H. 5325 Proj. SG214(1)	0.28	8" Cem. Conc. Pavt., 22' 40" Wide 92' Plate Girder	$13,000 Plans $5	$230,000
		DISTRICT No. 3				
		WM. ROBINSON, District Engr., 301 E. Water St., Syracuse, N. Y.				
Cortland, Oswego, Tompkins & Wayne	RC 49-118	Br. No. 1, S. H. 5720; Br. No. 1, S. H. 10026; Br. No. 2-S. H. 5214; Brnos. 2 and 3, S. H. 5294; Br. No. 4-S. H. 8095; Br. No. 1, S. H. 378; Br. No. 2, S. H. 8259; Br. No. 1, S. H. 510; Br. No. 1, S. H. 5141; Br. No. 1, S. H. 995; Br. No. 1, S. H. 1551; Br. No. 2, S. H. 8028; Brs. 2 and 10, S. H. 8420	....	Painting 15 Bridges	$1,500 Plans $5	$28,000
		DISTRICT No. 4				
		A. R. MULLIGAN, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Livingston	FASGRC 49-119	Elim. of Grade Crossing of the D. L. & W. R. R. with Geneseo-Geneseo Hamlet Underpass, S. H. 9200 Pavilion-Geneseo, Pt. 3, S. H. 1777 Proj. SG217(1)	0.13	8" Cem. Conc. Pavt. 24'-44' Wide, 54' Plate Girder	$10,000 Plans $5	$190,000
		DISTRICT No. 5				
		C. R. WATERS, Dist. Engr., 65 Court Street, Buffalo, N. Y.				
Erie	FAC 49-10 FARC 49-116	Hamburg Turnpike; City of Lackawanna, Lackawanna City, South, S. H. 5071 Proj. No. U750(3)	2.12	Aspir. Conc. Opt. on Conc. Found. = 2.02 mi. Misc. Work = 0.10 mi.	$58,000 Plans $10	$381,000
		DISTRICT No. 6				
		H. F. BRUMM, Dist. Engr., 30 W. Main St., Hornell, N. Y.				
Chemung	RC 49-115	Erin-Vanetten-Spencer, Pt. 1, S. H. 1311 Wellsburg-Waverly, Pt. 1, S. H. 1764	0.44	Repairs to Retaining Wall	$1,000 Plans $5	$18,000
		DISTRICT No. 8				
		J. S. BIXBY, Dist. Engr., Pleasant Valley Rd., Poughkeepsie, N. Y.				
Ulster	FASS 49-29	Accord Bridge, Co. Br. No. 0.07 153 and Approaches Proj. S343(1)		Asph. Conc. Opt. 98' Sp. Alpha I-Beam Alpha = $76.02	$9,500 Plans $5	$163,000
		DISTRICT No. 10				
		J. J. DARCY, Dist. Engr., Montauk Hwy. at Little E. Neck Rd., Babylon, L. I., N. Y.				
Kings	FABQE 49-3	Brooklyn-Queens Expressway Contract No. 12 Proj. U1066(10)	0.28	Viaduct Columns Footings and Misc. Paving	$45,000 Plans $20	$775,000
Kings	BQE 49-2	Brooklyn-Queens Expressway (Cont. 14)	0.31	Demolition of Buildings	$9,000 Plans $5	$160,000
Suffolk	.....	Beach Protection, Jacobs' Point Beach	....	4 Conc. Block Jetties	$5% of bid Plans $5	$24,235

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS enable you to get the greatest variety of bids—and so to get the lowest prices consistent with the best work.

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.20 cents a line, minimum 4 lines. To figure advance payment count 5 average words as a line.
INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.00 a line an insertion.

INFORMATION.
BOX NUMBERS care publication New York, Chicago or San Francisco offices count as 1 line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:
The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

NEW ADVERTISEMENTS received by October 25th appear in November 3rd issue subject to limitation of space available.

FOUR UNUSUAL ENGINEERING OPPORTUNITIES

The Venezuelan government has openings for four experienced engineers for not less than two years, to assist in various phases of a vast government irrigation program. They will work under the Director of Irrigation in the Ministry of Public Works.

Men are wanted with broad experience in the following fields:

1. River surveys and investigations preliminary to planning improvements for irrigation, navigation and electric power development.
2. Soils and soil mechanics. Foundations and concrete work. Design of dam foundations and earth dams. Selection of materials. Supervision of concrete work.
3. Reinforced concrete work and concrete dams. Capable of taking charge of concrete dams and concrete work required in earth dams and other structures of irrigation systems.
4. Preparation of project specifications and supervision of construction to assure that specifications are being met. Knowledge necessary for planning construction work and selecting plant and equipment also is desirable.

Headquarters will be in Caracas, scenic capital of Venezuela, but frequent trips and assignments elsewhere will be necessary. Men with families will be provided for. Good salaries and living conditions.

In reply, please give complete professional experience, age, job resume, family status, references and salary desired. Enclose recent photograph if possible. All inquiries will be treated in strict confidence and interviews arranged.

Address:

P-1203, Engineering News-Record,
330 West 42nd Street, New York, New York

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED: EXPERIENCED Structural Detailer, good opportunity. Address Arkansas Foundry Company, Box 909, Little Rock, Arkansas.

STRUCTURAL DRAFTSMEN. Require several first class experienced detailers and checkers for structural fabricating plant (in Detroit). Give complete information, experience and rate desired. P-1021, Engineering News-Record.

STRUCTURAL STEEL Detailers—Also Detailers for ornamental and miscellaneous iron. Experienced men only. Give all pertinent information. P-1082, Engineering News-Record.

PURCHASING AGENT Assistant for large construction firm. P-1110, Engineering News-Record.

EASTERN UNIVERSITY is seeking specialist in Photogrammetry who has had experience in surveying and practical photogrammetry, including use of stereoscopic mapping instruments and research. Background in geodesy highly desirable. P-1109, Engineering News-Record.

PROJECT MANAGER capable of managing several projects simultaneously with not less than five years experience as a field superintendent in charge of responsible work thoroughly familiar with field co-ordination, expediting, cost systems, establishment of field construction methods and management of field operations; permanent position, give complete resume of experience, age and employer references when applying. P-1134, Engineering News-Record.

CIVIL ENGINEER with demonstrated ability to assume responsible charge and at least 6 years experience in water supply design, and hydrological work. New York consulting office. Salary open. State qualifications and salary expected. Replies will be treated confidentially. P-1123, Engineering News-Record.

WANTED: CITY Engineer. Experience in sewer, water, and paving work. Must be a registered engineer in North Dakota or able to qualify. Starting salary $4800 to $6000. Write City Manager, Minot, North Dakota.

CIVIL ENGINEER: About 34 with 5 years experience. Small specialized office with national coverage since 1923. Exceptional opportunity for energetic go-getter. Wesley Bintz, 301 S. Washington Avenue, Lansing 25, Michigan.

(Continued on opposite page)

Chief Civil Engineer WANTED

Established West Coast Engineering firm needs qualified Graduate Civil Engineer to take charge of Civil Department. Thorough knowledge and wide experience required in Civil Engineering including grading, drainage, roads, railroads, and utility layouts for municipalities. In addition, applicant must possess ability to discuss and develop prospective work with municipal, county and state authorities. Furnish complete record with photo. Replies confidential.

P-1169, Engineering News-Record
621 S. Hope Street, Los Angeles, Calif.

WANTED ESTIMATOR

General Contractor located near Chicago, operating nationally, has opening for top flight man. Reply in confidence, give background and experience. Commensurate salary.

P-1059, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED: SHOP FOREMAN

To manage heavy construction contractor's repair shop supervising 8 to 10 mechanics, repairing tractors, trucks & cranes under supervision of equipment superintendent. Permanent position for man with ability and capacity to get things done. Location—Central New York State. Send complete details on experience and references in first letter. Reply:

P1183 Engineering News Record
330 W. 42 Street New York 18, N. Y.

Estimator—Top Grade

For old established firm. Must have experience estimating buildings and be thoroughly familiar with current pricing.

P-1195, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

BRIDGE DESIGNERS DESIGNER DRAFTSMEN RESIDENT HIGHWAY ENGINEERS

Experienced men wanted. State qualifications, age, salary and date available in first letter. Construction period, 24 months. Location, Eastern or Western Pennsylvania.

P-1078, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

ARCHITECTURAL, ELECTRICAL, MECHANICAL, STRUCTURAL

Men for immediate permanent employment in drafting room positions as job captains and squad leaders. Do not apply unless well qualified for work on building construction. State schooling, experience and salary expected.

Leo A. Daly Company
633 Insurance Bldg. Omaha, Nebr.

STRUCTURAL ENGINEER

Western Pennsylvania fabricator desires structural engineer with thorough knowledge of shop fabricating costs of heavy industrial buildings and bridges. Commensurate salary. Permanent. Write:

P-1133, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

Don't forget the Box Number

WHEN answering the classified advertisements in this magazine, don't forget to put the box number on your envelope. It's our only means of identifying the advertisement you are answering.

POSITIONS VACANT

NOVEMBER 15th General Foreman, Assistant Superintendent, large Monolithic sewers. Young aggressive pusher with not less than five years experience in same capacity on like work. Additional qualifications and technical training justifying advancement to superintendent important. P-1189, Engineering News-Record.

STRUCTURAL DESIGNERS. High grade experienced designers, detailers and checkers only. Bridge experience preferred. State experience, age, education and salary expected. P-1190, Engineering News-Record.

MATERIALS ENGINEER—C. E. Experience in highway materials, permanent, good salary and opportunity. Give full information. P-1188, Engineering News-Record.

SALES ENGINEER. Young graduate C. E. to develop into Branch Manager. Structural steel experience helpful. State age, experience and salary desired. P-1173, Engineering News-Record.

ESTIMATOR-GENERAL Contractor, excellent opportunity—must be able to manage office and take charge of bidding. State qualifications, experience, background. P-1172, Engineering News-Record.

WANTED: WE have an attractive opening for a man who has had experience in estimating and detailing concrete reinforcing bars. In addition he should have had experience in estimating bar joist, roof deck and steel sash. Our company represents the country's largest manufacturer of these products, and we feel that it is an unusual opportunity for a conscientious, energetic and reliable individual. State your experience, salary desired in first reply. Our employees know of this ad. P-1170, Engineering News-Record.

STRUCTURAL ENGINEER Graduate C. E., age 35 to 45, 8 to 15 years experience with reinforced concrete on structures of all kinds, able to describe and demonstrate to satisfy requirements. Will contact architects, engineers, contractors, builders and principals individually and in groups to promote use for a national materials assn. in Illinois. Company car, salary up to $475, location Chicago headquarters. P-1196, Engineering News-Record.

CONSTRUCTION SUPT. experienced bridges and earthwork. Must have proven record of ability. State salary and availability in first letter. The W. F. Henrich Co., Inc., 775 Main St., Buffalo, New York.

ESTIMATOR BY general contractor specializing in highest type building construction. Permanent connection. Must be able to show background of experience with reliable firm in estimating and purchasing of important contracts. Salary $10,000 yearly. Write full qualifications including references. P-1194, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

EXPORT SALES Representatives for both inside and outside positions. Preference will be given to qualified salesmen having technical or practical engineering training. Applicant should be under 36 years of age. Knowledge of heavy construction and mining machinery preferred. Write full particulars in first letter and enclose recent photo. Our sales organization knows about this ad. Write RW-1192, Engineering News-Record.

POSITIONS WANTED

CONTRACTOR'S RIGHT Hand Man—Experienced Manager, Engineer-Estimator. Purchasing Agent on: Commercial, Multi-Residential, Industrial Plants, Construction, including all Utilities; and on Engineering Construction covering Airports, Marine Facilities, Railroads, Roads, Quarry Operations. Desires permanent position as Manager, Estimator, Purchasing Agent for Gen. Contractor. Good background for position of Area Sales Manager for Cement Co., Bldg. Supply Co., Equipment Dealer. In reply state exact salary connected with position open. References. PW-9913, Engineering News-Record.

CHIEF DRAFTSMAN Structural desires connection small progressive shop. "Sweat" shop and fabricating shop experience. Good organizer. PW-9983, Engineering News-Record.

CIVIL ENGINEER—20 years experience in layout and supervision of construction of industrial plants, commercial buildings, highways and bridges. Free to travel. Available immediately. PW-1008, Engineering News-Record.

FIELD ENGINEER—30 years experience, U. S. and South America—industrial plant construction, water power development, docks, housing, etc., foreign location preferred. PW-1075, Engineering News-Record.

REPRESENTATIVE AVAILABLE

PRODUCER OF meritorious highway product can be represented by engineer of proved ability. I have promoted and sold to State and City officials, highway contractors, during past 25 years. Personally acquainted with highway officials in 20 States.

RA-1201, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

EXPERIENCED DETAILERS REINFORCED CONCRETE

Positions open now. 40-hour week. Excellent working conditions. All replies strictly confidential. Give full details and salary desired.

P-1153, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

GENERAL EQUIPMENT SUPERINTENDENT

Here is an opportunity for a man who has a successful background in the maintenance and repair division of a large construction company or its equivalent. He will be in charge of all equipment in a large construction company and must thoroughly understand all types of equipment used in the building of dams, bridges, tunnels, highways, buildings, etc. He will administer and coordinate the equipment program in the various company projects, and his past record should therefore demonstrate his ability to take responsible charge and get results. Please submit complete personal information and specific job experience in your reply. Our employees know of this ad. All replies will be held confidential. Salary open.

P-1174, Engineering News-Record
68 Post Street, San Francisco, Calif.

CONSTRUCTION PROJECT MANAGERS SUPERINTENDENTS

During the next few months an internationally known engineering and building firm will require several top notch project managers and superintendents with proven ability to manage various sized industrial construction projects consisting of building construction and mechanical installations.

These positions offer lengthy employment, excellent working conditions and good salary for qualified applicants.

Please submit complete resumes setting forth experience, education, size jobs under your supervision, references and date of availability.

P-9980, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

POSITIONS WANTED

CIVIL ENGINEER, Graduate, age 28, married, desires cost engineering work. 6 years of varied engineering experience. PW-1143, Engineering News-Record.

MASTER MECHANIC, equipment superintendent or service manager twenty years experience in the operation, repair and maintenance of all makes of heavy equipment also all phases of shop management and parts procedure, available immediately and will go anywhere. PW-1091, Engineering News-Record.

CIVIL ENGINEER, registered, 32, now completing job as resident on hydro-electric construction project, seeks a similar position, U. S. or foreign. Ten years construction and water works experience, 3 in S. America. Speaks Spanish. Univ. grad., married. PW-1101, Engineering News-Record.

MUNICIPAL ENGINEER. Civil Engineer, graduate registered, with outstanding record in public works design construction and maintenance, including ten years with progressive municipality, available as senior engineer with municipality or consultant. PW-1114, Engineering News-Record.

ELECTRICAL ENGINEER BEE June 1949, repaired radar equipment in army three years. Desire a start in design or development of power equipment. PW-1177, Engineering News-Record.

POSITIONS WANTED

CONSTRUCTION SUPERINTENDENT, 25 years experience industrial and building construction excavations, and foundation work. Organizer and producer of quality work. Midwest or western location preferred. Available in near future. PW-1108, Engineering News-Record.

EXECUTIVE SECRETARY, Stenographer, Engineering office and construction field office experience. Familiar government contracts. Permanent post on prefer—temporary considered. PW-1171, Engineering News-Record.

CIVIL ENGINEER or Superintendent desires another assignment to Spanish Speaking Latin America. American citizen, graduate engineer, registered, age 37, with 14 years experience in light and heavy construction, highways, railroads, surveys, and reports. Able to speak Spanish and work both Gringo and Indian labor. At present in South America, but available for new assignment about Jan. 1st. PW-1158, Engineering News-Record.

STAFF ENGINEER, Licensed, available now, capable handling entire industrial plant expansion program from design through construction. PW-1191, Engineering News-Record.

GENERAL SUPERINTENDENT — 50 — real asset as key man in Live organization. Thoroughly competent building man, much heavy experience. Spent years as Construction Superintendent before moving up and considered one of the best. Excellent brochure and references. Address PW-1184, Engineering News-Record.

Steel Fabricating Plant

Well established reinforcing and structural steel business. Located in southeast Florida. Increasing volume and resultant expansion necessities additional capital.

Owners will sell up to 50 per cent of equity to interested party.

BO-1107, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

Sale Rent
GRIFFIN GENERATORS
WAUKESHA 6 cyl. Gas Engine
Electric Machinery Co.
Generator

17.5 KVA
AC - 3 phase - 60 cycl. -
220 Volt

Electric Starting

Complete Panel Board

GRIFFIN WELLPOINT CORP.
881 E. 141st St. New York 54

FOR SALE or RENT
ALL LATE MODELS

1—N. W. Shovel, 2½ c.y. new Oct. 1946

1—N. W. Shovel, 1½ c.y.-new April 1946

1—Allis Chalmers Tractor Model HD19H, new May 1948

5—D W 10's—used 2500 hours

1—Caterpillar Auto Patrol #12—9K4626

1—Caterpillar D8 Angledozer #8R8933

1—Caterpillar D7 Bulldozer 4T5988

WILLIAMS CONSTRUCTION CO.
Box 145, Middle River, Baltimore 20, Md.
Phone: Essex 1310

NEW PARTS
FOR
Tractors, Graders, Scrapers, Shovels, Cranes, Trench Diggers, etc.

(Allis Chalmers, Caterpillar, International, Barber-Greene, Insley, Buckeye, Northwest, Loraine, Tumapull.)

Cutting Edges All Sizes—Fairleads

CEMENT MIXERS
2 Ransome and 1 Rex
Excellent Condition

JULIUS HEBENSTREIT, INC.
56-15 58th St. Maspeth, L. I.
Tel. DAvenport 6-1461
Cable: Habenjul New York

FOR RENT
New and almost new Manitowoc Speedcranes
60 ton—2½ cu. yd. capacity Combination cranes, dragline and clamshells, caterpillar mounted—diesel powered. Reply
FR-8967, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

FOR RENT WITH OPTION—FOR SALE
all rebuilt and guaranteed
Caterpillar D-7 hydraulic & cable bulldozers
International TD-18 hydraulic & cable bulldozer
International TD-14 hydraulic bulldozers
Truck Cranes, 7-17 tons (Moto-Bay City-Insley)
Lorain mdl. 30 crawler ½ cy shovel, backhoe, crane
BENDIX MACHINERY CO., INC.
401 Broadway, New York 13 Tel: Canal 6-5693

New and Guaranteed Used
Steel PIPE and TUBING
For Every Purpose

New and Guaranteed Used
Steel TANKS
Welded - Riveted - Bolted
For High Pressure; also ordinary storage
Up to 74,000 bbl. capacity

Large stocks carried everywhere for IMMEDIATE SHIPMENT

A. GREENSPON PIPE CO., INC.
(In Business 73 years)
3615 Olive St. St. Louis 8, Mo.
FRanklin 0064 or 1606

Rent with Purchase Option
PAVING EQUIPMENT
Forms, Bins, Finishers, Pavers, etc., etc.
DRAVO-DOYLE Company
2601 Preble Ave. Pittsburgh 12, Pa.

FOR SALE
3/4 yd. Speeder gas shovel • 10 ton Austin 3-wh. roller • 2 yd. LaPlant-Choate Scraper #4, 4½ & 5 Champ. jaw crushers #19 Kennedy Gyratory • 12 x 16 & 24 x 16 2-roll crushers • #4 A.C. Pulverator • 24" x 16' Apron Feeder • 16 x 25 Flory 2-dr. elec. hoist • 16 x 23 Lidgerwood 3-dr. steam hoist • 25 ton Porter std. ga. fireless locomotive.
HAGERSTOWN EQUIPMENT CO., INC.
HAGERSTOWN, MD.

FOR SALE
1 Buckeye ¾ yard model #70 Shovel 1¾ yard Back Hoe Attachment and spare parts. Will trade for ½ yard machine.
S & S CONSTRUCTION CO.
Box 422 So. Fallsburg, N. Y.

FOR SALE
2 Koehring Gantrys Convertible to Caterpillars

FS-9630, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

SACRIFICE SALE
(1)—**Caterpillar** D7 with bull-tilt dozer, D.D.P.C.U. 4T series $7999.00
(1)—**Caterpillar** D7 Hydrolic-angle dozer 2T series $7999.00
(1)—**Caterpillar** D2 Hydrolic-angle dozer 3J series $3300.00
(1)—**International** CT-9 Traction swing crane $2750.00
(1)—**Mack** Tractor 1941, Model L M. Cummins Diesel engine 150 H.P. New 1100-24 tires, fifth wheel and saddle tank. Air brakes. $2750.00

The above equipment is all reconditioned, owned by us and can be seen at our yard.

INTERNATIONAL CONSTRUCTION EQUIPMENT CORPORATION
58-02 Queens Boulevard
Woodside, L. I., N. Y.
Phones: Havemeyer 9-9210–Hickory 6-0699

FOR SALE
Available after September 1, 1949

1—Marion ¾ c.y. shovel 1942 Model 331 with Backhoe attachment complete.
1—Adams Grader, 1941 Model #303-H-371.
1—Parsons Trencher, Model #25, Serial #1560.
1—TD 14, 1946 International Hydraulic Control Bulldozer Serial #TDF-12512 T11F.

All equipment recently overhauled and in first class condition, attractively priced. Further details upon request.

E. B. McGURK, INC.
P. O. Box #630, 355 Barbour Street
Hartford, Conn.
Telephone—Hartford 7-7106
S. F. Mitchell, Pur. Agent

For Sale at a Bargain Price

2—D8 Tractors 8R Series

1—D7 Tractor 7M Series

1—D8 Tractor 1H Series

All in good working condition, equipped with LeTourneau equipment.

1—Lima Model 750, 1¾ yd. diesel, air control, excellent condition.

1—Osgood Model 800, 1½ yd. diesel, air control, excellent condition.

TUCKAHOE CONSTRUCTION CO.
116 Columbus Avenue, Tuckahoe 7, N. Y.

FOR SALE
1—1½ Cu. Yd. Amsco Shovel bucket, new, complete with teeth and sheave for P & H Shovel. Price $1450.00

Phone Williams 1-8600
Hillsgrove, Rhode Island

DERRICK
15 ton steel stiffleg derrick,
35' mast, 85' boom, 18'6" extension
$2,250.00
Capacity 15 tons with 85' boom at 45 degrees radius.

A. F. WAGNER IRON WORKS
1905 S. First St. Milwaukee, Wis.

1,000 NEW SAFETY HELMETS
Very Specially Priced Type K. "Skullgards" made by Mine Safety Appliances
Also available, 500 Winter Liner Sets (cap and ear-laps)
NATIONAL EQUIPMENT SALES, INC.
24-16 Jackson Av. L. I. C. 1, N. Y.

D-8 DOZER
Serial #2U5599 Cat. Tilt Blade 2-Drum Cat. Hoist or Cat. Hydraulic Blade.

STEWART S. SILL
Sodus Point, New York

FOR SALE
New Bucyrus-Erie 200-W diesel dragline
125' Boom, 6 yd. Bucket, 390 H.P. Engine
Never used, immediately available, central location. Address
FS-1049, Engineering News-Record
68 Post Street, San Francisco 4, Calif.

FOR SALE . . . CONSTRUCTION EQUIPMENT

This equipment was used in building LOCKS 27 MISSISSIPPI RIVER

The balance of the equipment, cranes, whirleys, concrete plant, pumps, boilers, buckets, heaters, conveyors, etc., will be released from time to time in the next few months. Inquiries invited.

	Condition	Original Cost
BUCKETS:		
1—2-cu. yd. Drag Scraper Bucket of 1/2" Plate, comparable to a Sauermann Bucket in design	Good	$580.00
2—4-cu. yd. Drag Scraper Buckets of 3/8" Plate, Comparable to a Sauermann Bucket in design	Good	700.00 each
BLASTING MATS:		
7—3/4" Wire Rope Blasting Mats —2—8'x10' 5—8'x10'	Fair Fair	102.40 ea. 128.00 ea.
CRANE:		
1—Used Porta Crane, Model AS-40, s/n 122, with 25' boom and 1/2" cable, mounted on Rubber Tires	Good	1,000.00
HOSE:		
1 lgth. —22" I. D. 10-ply #POH10075 Wire Inserted Rubber Water Hose, good for Max 40 lbs. water pressure. Overal lgth. 12'. Capable of 20-degree bend and equipped with built-in nipples and welded flanges, having 20 holes for 1 1/4" bolts on 27 1/4 dia. bolt circle	Never used	1,062.51
2 lgths. —18" I. D. 8-ply Rubber Water Hose, wire reinforced, 50-lbs. maximum pressure. Overall lgth. 9' 10". Capable of 20-degree bend and equipped with built-in nipples and welded flanges, having 16 holes for 1 1/4" bolts on 22 3/4" dia. bolt circle.	Never used	634.30 ea. lgth.
PILE HAMMERS:		
1—McKiernan-Terry 9B3 Steam Hammer, #10552, w/flat anvil block, with skirts mounted for sheet pile driving	Used two months	3,000.00
1—McKiernan-Terry 11B3 Steam Hammer, #10553, w/flat anvil block, with skirts mounted for sheet pile driving and with spare parts	Purchased new Never been used	4,350.00
1—Miscellaneous Spare Parts for the above hammers		Approx. 1,600.00
PIPE CONCRETE:		
12 pcs. —48" Reinforced Concrete Sewer Pipe, 4' 0" lgths. as per ASTM Spec. C75	Purchased new Never been used	29.20 ea. lgth
PUMPS:		
1—Pump, Aurora Model AD-2, Centrifugal, S/N 24832, with 4" suction and 3" discharge, direct connected to 76-HP Chrysler Gasoline Engine #4238, base mounted. For intermittent duty, capacity 480 GPM at 300-ft., head at 2400 RPM. For continuous duty, capacity 400 GPM at 220 ft., head at 2000 RPM	Built Dec. 1944 Used 100 hours	485.00
1—Pump Aurora Model AD-2, Centrifugal, S/N 22638, with 4" suction and 3" discharge, direct connected to 76 HP Chrysler Gasoline Engine #3941, base mounted. For intermittent duty, capacity 4380 GPM at 300-ft. head at 2400 RPM. For continuous duty, capacity 400 GPM at 220 ft., head at 2000 RPM	Built Feb. 1945 Used 100 hours	485.00
1—Pump, Houston Foundry Co., with 12" suction and 10" discharge, with D17000 Cat. Engine, #9J5529SP Engine on skids and has clutch and 10 V belt and pulley	Good	7,545.00
1—Pump, 6" Sand & Gravel, Fremont Fdry. & Machine Co., PESC, with power unit Allis Chalmers E-60, #PU910E, with clutch and 26-groove size D pulleys & belts	Fair	1,482.00

	Condition	Original Cost
REINFORCING MESH:		
1 roll —4"x4" —4/4, 214'x60"	Fair	6.29C sq.ft.
3 roll —6"x6" —6/4/44 ea. 150'x60"	Fair	6.83C sq.ft.
9 roll —6"x6" —6/6, a. 150'x60"	Fair	3.02C sq.ft.
1 roll —6"x6" —6/6, 81'x60"	Fair	3.02C sq.ft.
DRILLS, ROCK:		
1—Ingersoll Rand Model FM2 Wagon Drill, complete with X71 Drifter and mounted on 3 rubber tired wheels, s/n #313, Mfd. 1947	Used 3 mos.	1,758.37
1—Ditto s/n #317, Mfd. 1947	Used 3 mos.	1,758.37
1—Ditto s/n #316, Mfd. 1947	Used 3 mos.	1,758.37
1—Ditto s/n #246, Mfd. 1947	Used 3 mos.	1,758.37
1—Ditto s/n 6641, Mfd. 1944	Used 3 mos.	1,488.35
1—Ditto s/n #391, Mfd. 1948	Used 3 mos.	1,940.00
1—Ditto s/n #390, Mfd. 1948	Used 3 mos.	1,940.00
1—Ditto s/n #396, Mfd. 1948	Used 3 mos.	1,940.00
1—Ingersoll Rand Model X71 Drifter, complete less shell, feed screw & feed crank	Used 3 mos.	635.00
WATER SOFTENER:		
1—Elgin Double Unit, 36" dia. x 72" shell height, double check, also Resex #5 Softener, designed for an operating pressure of 100 p.s.i. and complete from inlet to outlet, including:	Used very little	4,305.00

2—36" x 72" Softening Tanks
1—60" x 48" Brine Tank
2—1 1/2" Elgin Solo Valves
2—1 1/4" Water Meters with Bell Alarm
1—3/4" Brine System
1—Elgin #108 Test Set
1—Automatic Backwash Controller
2—36" D.C. Upper Manifolds
2—36" D.C. Lower Manifolds
64 cu. ft.—Resex #5 Zeolite

Overall height of this unit—7' 10"
Space Required —5' x 13'
Overall Weight —7,000 lbs.
Maximum Flow Rate —57 GPM each tank

RIVER CONSTRUCTION CORPORATION

P. O. BOX 21
GRANITE CITY, ILL.

Caterpillar Diesel Engines

Model D-13,000 and D-8800

Complete - Very few hours

JULIUS HEBENSTREIT, INC.
56-15 58th St., Maspeth, L. I., N. Y.
Tel. Davenport 6-1461
Cable Address: Habenjul New York

FOR SALE

PAVER 34-E Koehring Dual Drum Located Near Memphis, Tennessee. $8,000.00.
SHOVEL ATTACHMENT 3/4 Yard Buckeye. Unused. $750.00. Located Kenner, Louisiana

T. L. JAMES & COMPANY, INC.
Kenner, Louisiana

NEW Guaranteed — 1¼"

PNEUMATIC DRILLS

UP TO 60% off

WRITE NAME SURPLUS INGERSOLL RAND CHICAGO PNEUMATIC

BERKELEY DISTRIBUTORS, Inc.,
16 JOHNSON AVE., HACKENSACK, N. J.

BARGAINS FOR SALE

100 KW. Diesel Engine Generator Sets

11—100 KW., 120/240 V. D.C. Delco Generators dir. con. to 150 HP Model GBD-8, 5 1/2x7, 8 cyl. Superior Diesel Engines, elec. starting with muffler, power panel and accessories.
4—100 KW., same as above with 220 or 440 V., New A.C. Generators.
2—100 kw., 20 440 v. 3 ph. 60 cy. West.-General Motors Model 3-268A.
2—60 kw., 220/440 v. 3 ph. 60 cy. Delco-Cummins DIESEL.
2—30 kw. 220 440 v. 3 ph. 60 cy. Century-Buda Diesels
1—10 kw. 220 440 v. 3 ph. 60 cy Hercules GASOLINE
1—7 1/2 kva. 120 v. 3 ph. 60 cy. Wisconsin GASOLINE
11—3 kva. 110 220 v. 3 or 1 ph. Hercules Gasoline

WRITE FOR CATALOG Listing A.C.- & D.C. Motors 1 to 1500 HP. M.G. Sets, Transformers, Brand New Control Equipment.

DUQUESNE ELECTRIC & MFG. CO.
PITTSBURGH 6, PA.

Equipment Values!

TRACTOR AND LOADER. International Diesel TD9, equipped with Bucyrus-Erie hydraulic ¾ yard loader, lights, starter, battery, and generator. This outfit is less than a year old and looks like new. A real bargain at the price. Price, f.o.b. Louisville..... $3475.00

COMPRESSOR. Gardner-Denver, 210 ft., portable, mounted on four steel wheels. Looks and performs like new. Price, f.o.b. Louisville..... $3375.00

MIXER. Jaeger, 2-bag, with power loader, mounted on two pneumatic tires. This mixer is about nine months old and is like new. Price, f.o.b. Evansville, Indiana..... $1770.00

TRACTOR AND DOZER. Caterpillar Diesel D8, equipped with LeTourneau bulldozer and LeTourneau power control unit. This tractor is in good operating condition. Price, f.o.b. Evansville, Indiana..... $7350.00

MOTOR GRADER. Austin-Western, Model 99, equipped with International Diesel engine and 14 ft. blade. This machine gives a very good appearance and apparently is in good shape. Price, f.o.b. Evansville, Indiana..... $1800.00

ENGINE-POWER UNIT. International Diesel UD16, 100 H.P. This engine has been used only three months and sold new for $3150.00. Our price, f.o.b. Evansville, Indiana..$2250.00

ROY C.
WHAYNE
SUPPLY CO.
800 W. MAIN ST. • LOUISVILLE KY.
Evansville, Ind. Paducah, Ky.

IMMEDIATE DELIVERY

DOUBLE REX PUMPCRETE MACHINE

Rex 160 Double Pumpcrete, gasoline driven with Remixer, capacity approx. 40 cu. ft. per hour. Includes all accessories plus 800 lin. ft. 7" pipe and fittings, completely reconditioned.

McCLOSKEY & COMPANY
1620 W. Thompson Street
Philadelphia 21, Pa. Tel. St-4-3300

CONCRETE PLANT

1—Complete Concrete Mixer Plant, including 2—model 2S-S mixers, (less than 18 months service), with 25 HP, 440 Volt Motors, Blaw-Knox 1¼ yd. weigh batcher and 105 ton 2 compartment aggregate bin, 300 Bbl cement bin, cement elevator and track unloading equipment, heavy (26 tons) structural steel superstructure. The assembled plant is 25 ft. by 30 ft., overall, and the top of the cement elevator is 60 ft. high.

This plant is located at Willow Island Station, six miles south of St. Marys, West Virginia, on West Virginia State Route #2. Photographs and erection drawings are available.

Write for price and further particulars.

MONONGAHELA POWER COMPANY
Attention: W. P. Roberts
Fairmont, West Virginia

FOR SALE

Thermopane Glass
710 Lites 14 x 15-11/16

HARWOOD CONSTRUCTION CO., INC.
1520 K Street, N. W. Washington 5, D. C.
Phone RE-0707

---

41 B Bucyrus Steam Crane
#5 Northwest Crane
Worthington 110 2 stage air Compressor

EDWARD ACKER CO.
SETAUKET, N. Y.

FOR SALE

1—N. W. Shovel
1½ c.y., Diesel New, never been used.

A. V. WILLIAMS
Box 145, Baltimore 20, Md.
Phone: Essex 1312

SURVEYING INSTRUMENTS

USED • REBUILT • SALE
RENT • REPAIRING

1—Bay City

Model 25—½ yd. High Lift Shovel and Back Hoe attachment. Rebuilt, good condition.

THE HENRY H. MEYER CO., INC.
BALTIMORE, MARYLAND

WANTED

It costs no more
to have your instruments of any make
repaired by the makers of the
WORLD'S FINEST SURVEYING INSTRUMENTS
since 1871
C. L. BERGER & SONS, INC.
37 Williams Street, Boston 19, Mass.

FOR SALE

SEVEN
NATIONAL AIR SIDE DUMP CARS

2-way dump—Standard Gauge

LOUDEE IRON & METAL CO., INC.
165 Broadway New York 6, N. Y.

WANTED

Backhoe Attachment
for 75 or 83 Byers Shovel

W. N. DIPPEL
Box 313 Hazleton, Pa.
Phone Hazleton 3019

SURVEYING INSTRUMENTS FOR RENT

DANIEL McFARLAND
624 Second Ave. San Francisco 18, Calif.

International TD-14 hydraulic bulldozer, also International TD-18 hydraulic bulldozer

both late models in excellent condition, to be sold at low price

B A B CORPORATION
401 Broadway, New York Tel. Canal 6-5723

WANTED

ASPHALT PLANT

Batch Type. Either 1000 or 1500 pounds, complete for hot mix asphalt.

W-1187, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

RAILS-TIES
TRACK ACCESSORIES

FOR SALE

1—Buckeye Trencher Model 160, Ser. No. 4126. Good condition.
1—Insley 8-wheel 12-ton Platform Trailer. New May 1948.

McGowen Contracting Co., Inc.
OPELIKA, ALABAMA
Phone 1218 P. O. Box 908

WANTED

ONE ROLLER LEVELER
FOR ALUMINUM

capacity of ¼" to ¾" x 72" wide or nearest size

LOUDEE IRON & METAL CO., INC.
165 Broadway New York 6, N. Y.

RAILS-ANGLE BARS
TIE PLATES

Write for Regular Bulletins of
CURRENT LISTINGS
Complete Range of Sizes
Always Available
RAIL DIVISION
COMMERCIAL METALS
Company
LATIMER AT CORINTH, P.O. BOX 1046, DALLAS

RECONDITIONED

ERIE B2 STEAM CRANE

With 50 Foot Boom, Clamshell Bucket, and Dipper Stick. Ready for immediate use.

DAVID ATAMANCHUK
403 River Road, No. Arlington, N. J.

Late Model

¾ OR ½ YARD CRANE, SHOVEL OR BACKHOE

must be in good condition. Send model, type, price, serial number and the attachments available with the machine.

FRANK PECORA CONSTRUCTION CO., INC.
204 E. Preston St. Baltimore 2, Maryland

FOR SALE OR RENT

LORAIN MOD 79

1½ cy Diesel Shovel, completely rebuilt in excellent condition

BENDIX MACHINERY CO., INC.
401 B'way, N. Y. 13 Tel: Canal 6-5693

WANTED

1—Backhoe for Northwest No. 6
1—60' Boom

WILLIAMS CONSTRUCTION CO.
Box 145, Middle River Baltimore 20, Md.
Phone: Essex 1310

PILING

FOR SALE

Engine and Generator Set

One Used 187 KVA, 164 R.P.M., 240 Volt, 3 Phase, 60 Cycle Cluse Engine and Generator Set in First Class Condition. For further information contact:

International Milling Company
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Pursuant to an order by the Hon. Carl D. Friebolin and the Hon. Wm. B. Woods, Referees in Bankruptcy, Cleveland, Ohio, we will on

THURSDAY, OCTOBER 27, 1949 AT 10:30 A.M.

offer for sale by

PUBLIC AUCTION

(on the premises)

The Strip-mining leases, Strip-mining Machinery and Equipment of

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Approx. 17 miles North of Athens, Ohio • (on Route 50-A)

STRIP MINING MACHINERY AND EQUIPMENT

MANITOWOC 2½ yd. high lift and high speed Diesel shovels (1½ and 2 years old), MARION 1½ yd. drag line Diesel shovel, Mod. 362, with attachments, P & H ½ yd. truck crane with shovel and attachments, D13000 Caterpillar Diesel motor generator w/ COLUMBIA electric 75 KW generator, 250 V., 300 amp., 850 R.P.M., AUSTIN WESTERN 99 motor grader DS626, 6 cylinder gasoline engine, BUCYRUS ERIE T.D. 18 bulldozer, 120 ft. x 36 in. belt conveyor with drives, AMERICAN RING (A.G. 3) coal crusher—motorized), 5 ton steel feeder bin, McCARTHY horizontal gas powered drill with 10 drill sections, 48" picking tables with drives, DODD conveyor with drives, plate feeders with motors, KOHLER 15 Watt light plant, CUTLER-HAMMER switchboard, 2 yd. buckets, large lot of repair parts, consisting of clutch discs, brake bands, bushings, chains, wedges, teeth, etc., for shovels, gasoline powered air compressors with hose, STERLING gasoline powered centrifugal pumps, 7000 gal. fuel tank, etc.

Large lot of miscellaneous equipment including Chevrolet dump and stake trucks.

The above will be offered in Bulk, Units and Piecemeal Lots.

Sale Subject to Confirmation by the Hon. C. D. Friebolin and the Hon. Wm. B. Woods, Referees in Bankruptcy.

Terms of Sale: Cash or Certified Check—25% deposit required.

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Charles S. Weintraub
302 Citizens Bldg.
Canton, Ohio

ATTYS. FOR TRUSTEE:
Maurice Wendling
618 Renkert Bldg.
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SURPLUS EQUIPMENT

1—200 Amp. portable Westinghouse electric welder, equipped with dual voltage switch for 220/440 volts, 3 phase, 60 cycle motor, on 4 steel wheels.

3—300 Amp. portable Lincoln electric welder, equipped with dual voltage switch for 220/440 volts, 3 phase, 60 cycle motor, on 4 steel wheels.

2000 sq. ft.—Atlas Speed Steel Wall Forms, made by Irvington Form & Tank Corp., including 8" x 8'-0" and 6" x 8'-0" sections, 8" x 8" x 7'-11½" inside corner sections.

These welders and forms have been used, but all are in excellent condition. May be seen at our yard.

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871 Central Ave., Bridgeport 8, Conn.

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1—P&H Shovel, 1055 I.C. 3" c.y. New Aug. 1948.
1—P&H Shovel, 1055, 3 c.y. New Aug. 1948.
1—86-D N.W., 2½ c.y. New Feb. 1948.
2—Manitowac 3000A, 1¾ c.y. New Mar. 1947. Combination drag and shovel front.
1—Lorain 820, 2 c.y. New Mar. 1947. Rocket Bucket.
4—Caterpillar D-8 Late models, with double power winches.
4—Euclid Dumps, 9 c.y., 150 H.P. Cummins. New Sept. 1948.
16—Ward LaFrance trucks, DIC Models, 12-14 ton payload. New Jan. 1948.
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1—Coal Loading Bucket, 2½ c.y., 6 teeth, for Manitowac 3000A Shovel, New.
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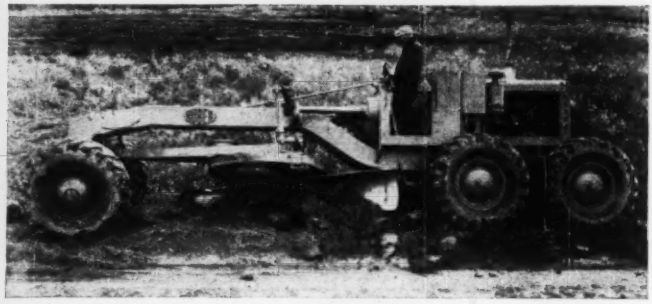
NEW PRODUCTS

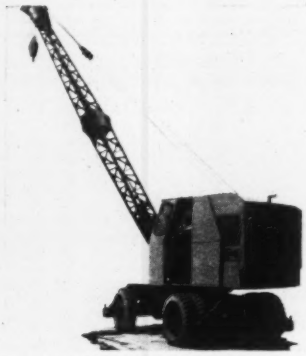


Twelve-Ton Motor Grader Is Powered by 130 Hp. Diesel

Heavy-duty motor grader weighs 24,500 lb., without, and 25,800 lb with, scarifier. Blade pressure without scarifier is 12,440 lb.; with 14,620 lb. Scarifier attachment is offered as optional equipment. Features include hydro-mechanical controls; 27½-in. front-axle clearance; 87-in. shoulder reach; mechanical steering; Hercules 130-hp. full diesel engine; 4-wheel hydraulic brakes; and easy accessibility to all operating parts for maintenance and service. Overall length of machine is 25 ft. 9½ in.; width is 7 ft. 10 in.; height with cab, 10 ft. 4 in. Wheels of the Huber grader are designed to remain perpendicular to the ground even when running over 14-in.-high obstacles or into 14-in. ditches.—HUBER MFG. CO., MARION, OHIO.

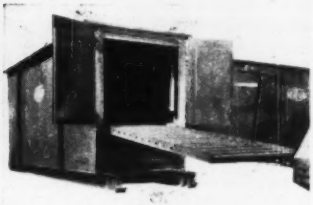
Saw Has Spiral-Shaped Blade

Band saw, available in two improved models, features the use of a spiral-shaped cutting blade. This blade presents a 360-deg. cutting edge permitting the operator to make cuts in any direction. Because it has no actual cutting edge, the hand can be held against the moving blade without suffering any cut or injury. The Model 100A Tyler saw has a 12-in. throat, an 8½-in. clearance under the guide bar, a 4-in. blade-tension adjustment, and a table tilt of 45 deg. to the right and 5 deg. to the left. It is powered by a ¼-hp. motor. The Model 500A is the same as the 100A plus having a combination of variable speed drive and planetary transmission. It is powered by a ½-hp. motor. The Tyler spiral blade can be used on conventional band saws. It will cut wood, metal, plastics, and other materials.—TYLER MFG. CO., DEPT. A, 60 BEAVER ST., NEW YORK 4, N. Y.



Mobile, 6½-Ton Crane Unit

Mounted on rubber tires, the Model MC-41 features 4-wheel air brakes, air steering, and optional 2 or 4-wheel drive. It is fully convertible to use as a crane, ½-yd. shovel, clamshell, dragline, or trench-hoe. It has a rated capacity of 6½ tons. A live boom mechanism is furnished where speedy raising or lowering of the boom is desired. General specifications include: full revolving chain crowd, welded-steel construction, ball or roller bearings at all vital points, disk-type clutches on swing, internal-expansion booster-type clutches on hoist and crowd, air-controlled steering, all clutches easily and quickly relined without removing shaft assemblies, and heavy-duty gasoline or diesel power unit. All operations of the MC-41 are controlled from inside the operator's cab.—HANSON CLUTCH & MACHINERY CO., TIFFIN, OHIO.



Asphalt Heater; Storage Tank

Combination asphalt-barrel heater and storage tank with rapid heating accomplished by either steam coils or oil-burner flues can be mounted on skids or pneumatic-tired wheels. Barrels are placed in heater with bungs removed, and, as the asphalt heats and runs out, it passes into the heated storage tank where it is kept hot until used. Advantages claimed are: rapid heating of quantities of barrels; no damage is done to barrels which can be re-used; and preheating done in storage tank saves time in heating asphalt in distributors. Heaters are made with barrel capacities of 7, 12, and 24 barrels at one time. The built-in storage tank can be had in 500, 1,000, and 2,000 gal. sizes.—K. E. MCCONNAUGHAY, LAFAYETTE, IND.

Aluminum-Scaffold Clamp

Drop-forged steel clamp permits erection of aluminum tubing scaffold. Tubing used is the standard 1¼-in. size (2 in. O.D.) which has a weight per foot of 0.939 lb. The Sturdie clamps can be used to erect scaffolds to any requirements and size. The Sturdie connector pin makes a strong connec-

(Continued on page 93)

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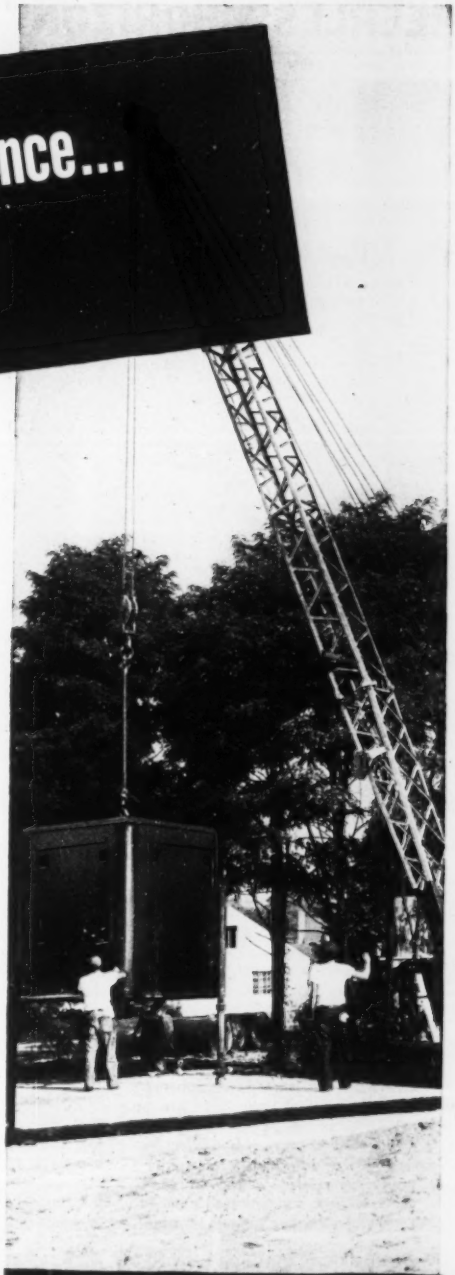

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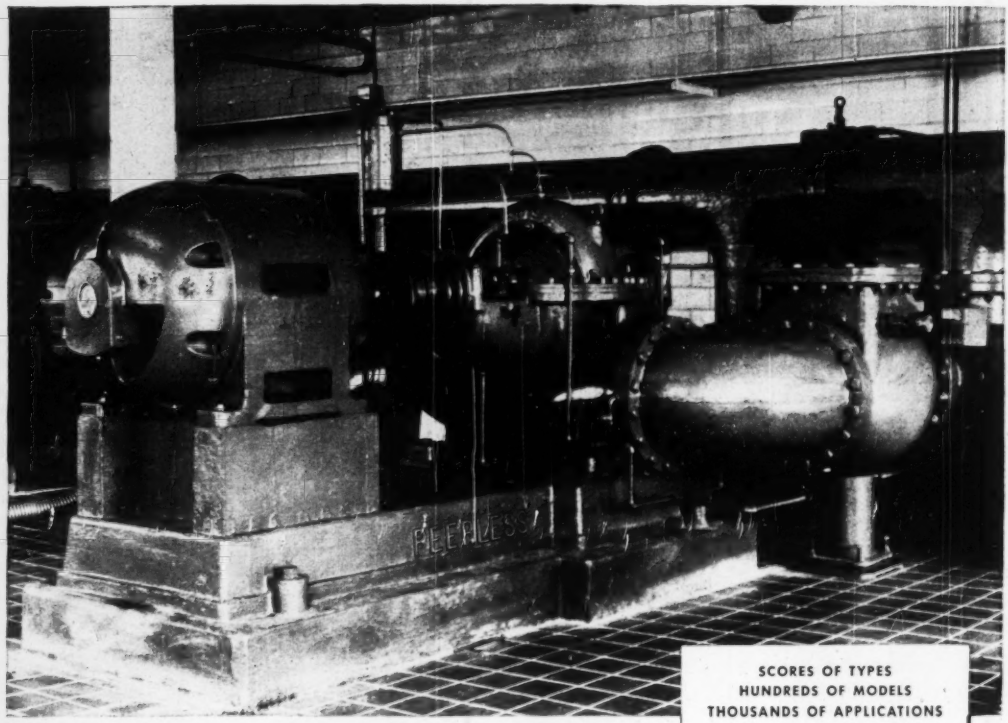

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Here are a few of the services which Peerless horizontal pumps can perform. Plan with Peerless. Request copies of the Bulletins you need by Bulletin number.

Pump Service	Bulletin No.
Water Supply	B-1300
Fire Protection	B-1500
Chemicals and Oils	B-810
Vaporous Liquids	B-2201
Butane-Propane	B-2200
Boiler Feed	B-806
Sewage and Solids	B-154
Hi-Pressure	B-310
Acids and Caustics	D-2400
Process Services	B-803
All-purpose Pumps	B-2301

For continuous or intermittent duty in a host of diversified services

Select the pump you need for the process you use from the diversified line of Peerless horizontal pumps. The pump shown above, a Peerless general purpose pump handling plant process water, typifies a host of efficient Peerless centrifugal pumps which are boosting output and cutting costs for manufacturers and municipalities everywhere. With its comprehensive line of horizontal pumps Peerless can handle chemicals or alkaline liquids, pump clear water or solids in suspension. There are pumps for fluids at high temperatures or they can furnish water or foam for approved plant fire protection. Peerless will move volatile butane-propane or tricky caustics and acids. Pumps are available for all practicable heads and capacities. Duty can be continuous or intermittent. Construction materials are suited to the liquid being pumped. And, backing up their installation qualified Peerless field engineering service is available in all principal cities to see that each pump matches or exceeds customer expectations. Write today for pump engineering information on your process or service. The chart at right lists a number of the types of Peerless horizontal centrifugal pump bulletins in which you will be interested.

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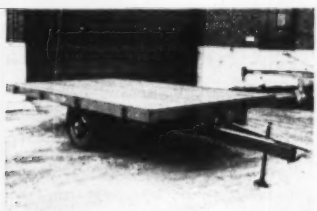
District Offices: New York 5, 37 Wall St.; Chicago 40, 4554 N. Broadway; St. Louis 8, 3908 Olive St.; Atlanta Office: Rutland Bldg., Decatur, Ga.; Omaha, Nebr., 4330 Leavenworth St.; Dallas 1, Tex., 3905 Elm St.; Fresno, Calif.; Los Angeles 31, Calif.

tion for plain end pipe, eliminating pipe with built-in connectors.—Leonard Malone Co., 342 Madison Ave., New York 17, N. Y.

Crush-Proof Suction Hose

Available in 1½, 2, and 2½-in. diameters, the Vitalic 367 has a corrugated construction employing heavy-duty spiral-wound cord for reinforcement. Cord is embedded in rubber between layers of multiple-ply square-woven fabric. The tube is made from thick, smooth-bore rubber specially compounded to resist abrasive wear. Reinforcing with cord imparts a high resilience which enables the hose to spring back into shape automatically when crushed, without stripping the cord from the tube. Corrugations prevent buckling and collapse on bends. — Continental Rubber Works, 1988A Liberty Blvd., Erie, Pa.



Tilting-Top Trailer

Single-axle trailer can be equipped with dual or single wheels. It has a 7x12-ft. hardwood platform and features steel-welded construction. Single-wheel models have a capacity of 2½ tons; dual wheel models, 3½ tons. Standard equipment includes tractor or ball-and-socket hitch, and stake pockets. Optional equipment includes a winch and electric brakes.—Mount Vernon Implement Co., Mount Vernon, N. Y.

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Corrulux is designed to simplify the installation of skylights in corrugated metal and asbestos buildings. It nests securely with standard corrugations, practically eliminating the possibility of leaks. These panels can also be used for partitions, awnings, canopies, facings, and other decorative purposes. They are available in soft green, coral, light ivory, sky blue, sunlight yellow, and forest green. Physical characteristics include: strength of 100 lb./sq. ft.; temperature range from 20 to 250-deg. F. without cracking, crazing, warping or rotting; and, unaffected by mild acids, alkalies, gasoline, oil, most organic solvents, salt water, and most industrial fumes. Corrulux is available in widths up to 42 in.; lengths to 12 ft.; in straight or curved sheets; and with 1¼, 2½, or 4.2-in. corrugations. Special corrugations available on order. — Corrulux Corp., P. O. Box 6524, Houston 5, Texas.

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Tractor-powered hydraulically-operated digger has a below-ground-surface reach of 6 ft. and a digging reach behind the tractor of 11 ft. Swinging arc is 93 deg. The unit can be operated at a rate of 50 lineal ft. per hour at a 6-ft. depth. Standard shovel cuts an 18-in.-wide trench and has a capacity of 3.5 ft. The hydraulic pump on the digger is operated from the power take-off shaft of the tractor. A stabilizer frame on the tractor lift arms takes the digging thrust. Protection is provided by a relief valve which bypasses the hydraulic pressure when the digger reaches the limit of its motion. — Sherman Products, Inc., Royal Oak, Mich.

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Mertone pre-coating produces blueprints with uniform deep blue backgrounds without burning out the faint lines of tracings. Other features include greater latitude in printing speeds, fewer changes in machine speed, and less waste through overexposure. — Monsanto Chemical Co., Merrimac Division, Everett, Mass.

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(Continued on next page)

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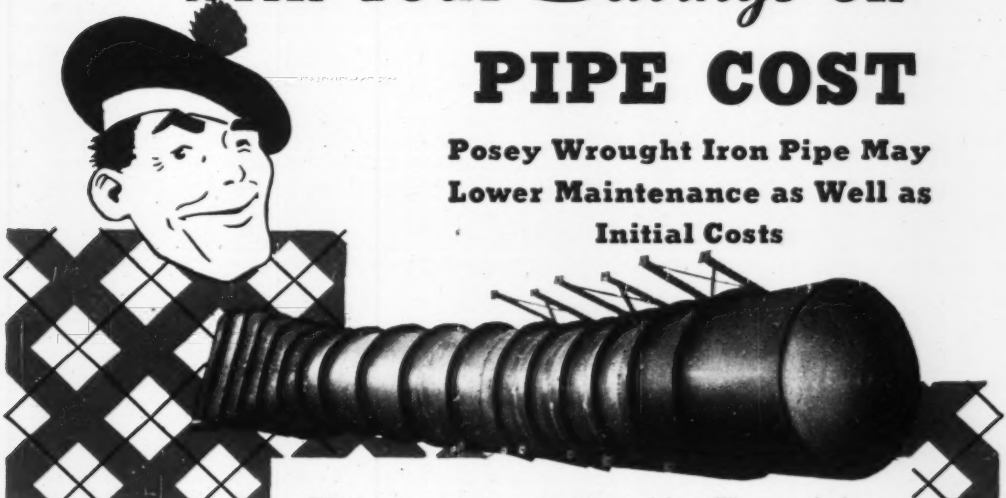

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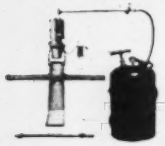

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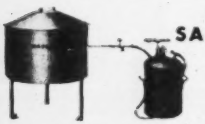
For fast heating large quantities of water for concrete mixers or central mixing plants. Conical water heating coil with hot water recirculation system in tank; powerful smokeless heating burner; fuel tank with hand pump and hose.



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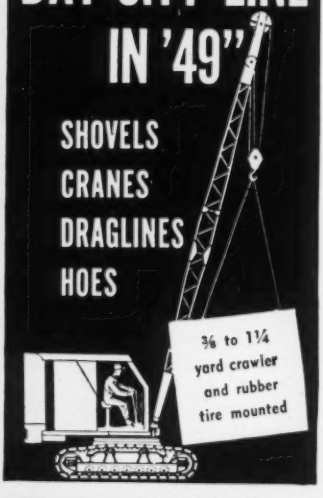

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BAY CITY SHOVELS, INC., BAY CITY, MICH.

MANUFACTURERS' PUBLICATIONS

Buckets and Grapples—Specific features of construction, common to all Owen buckets and grapples, are contained in a 28-p. catalog. Bulletin G-74925 serves as a guide in the selection of the proper type of bucket for each type of service. Specification table provides information on rating, capacities, deck area, dimensions, sheaves, cables, weights, and number of teeth per set for the Type M general-purpose buckets, the Type K and Type S material-handling buckets, the coal-type light and extra-light buckets, the Type D heavy-duty buckets, the Type DX extra-heavy-duty buckets, and the Owens grapples. Miscellaneous data cover attachments, three- and four-line industrial buckets, and special buckets. —The Owen Bucket Co., 6010 Breakwater Ave., Cleveland 2, Ohio.

Road Grader, Maintainer, Terracer—Four-page bulletin describes the Husky all-purpose road grader, maintainer, and terracer. Folder features a large photograph showing the location of the component parts of the Husky Model 33; of the Husky Model 22; and of the goose-neck tractor hitch. Text matter describes the operating characteristics and features of the entire line.—Northfield Iron Co., Northfield, Minn.

Standby Power Plants—Catalog Sheet No. 449-SB describes the Katolight standby power plants. Listed are seven ac models with ratings of 3, 4, 5, 7.5, 10, 12.5, and 15 kw. The catalog sheet describes the power units, features of operation, capacities, standard equipment provided with each unit, and accessories available for specialized service.—Kato Engineering Co., Mankato, Minn

Flexible Chain Couplings—Sixteen-page catalog describes a complete line of flexible chain couplings. Units listed are: roller-chain stock couplings, silent chain stock couplings, heavy-duty made-to-order silent chain couplings, and steel and plastic covers for the two stock couplings. Catalog C45-49 contains dimension data, horse-power ratings, and stock and minimum bores.—Morse Chain Co., 7601 Central, Detroit 8, Mich.

Temporary Bridges; Roadways—Illustrated, 28-p. report presents possible uses for materials, equipment, and methods available on a rental basis for constructing temporary bridges, barges, and roadways. Among the materials discussed in the report are steel treadways, trestle columns, pneumatic floats, Bailey bridges, steel pontoons, portable steel cubes, access ramps, and roadway materials. Recommended applications and rated capacities are provided for each item. The report also discusses the advantages and methods of erection of each type of structure.—Portable Bridge & Equipment Co., Gulf Bldg. Addition, Houston, Texas.

Truck Mixer Standards—Second revision (8 pp.) of standards for truck mixers and agitators is now available. These standards cover mixer and agitator units, types, sizes, capacities, drum volume, water measuring device, water and flushing tanks, water pump, hatch, mixing time and speed, agitator speed, and general requirements. —Truck Mixer Manufacturers Bureau, 1325 E. St., N. W., Washington 4, D. C.

Combustion Safeguard — Bulletin W-1816 describes the Electronic Pyrotrol combustion safeguard. Bulletin describes the application of the Pyrotrol in protecting gas-fired ovens, furnaces, kilns, boilers, dryers, kettles, and other heating equipment from the danger of gas explosions during ignition, operation, and shut-off.—The Bristol Co., Waterbury 91, Conn.

Heavy-Duty Transmissions—Selecting the proper transmission for a specific purpose is simplified by using a 12-p. catalog recently made available by Fuller. This catalog lists over 30 different models. Specifications are provided on gear ratios, weight, installation dimensions, and pertinent features of each model. —Fuller Mfg. Co., Transmission Division, Kalamazoo 13-F, Mich.

Dry Lubricant—Molykote Type Z is a specially prepared smooth-textured molybdenum compound powder whose treatment and composition render it peculiarly adaptable as a lubricant for extreme bearing pressure applications. Four-page bulletin, No. 52, contains complete information on Molykote including principle of operation, applications, and tests to which it has been subjected. Also listed is how it serves as a lubricant for machinery, dies, metal forming and drawing, and high-temperature threaded connections. Technical notes present data on its corrosion resistance, chemical and thermal stability,

(*Continued on page 98*)

Monsanto PENTA STARS in stage of St. Louis Municipal Opera

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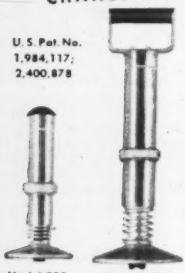

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specific gravity, and magnetic and electrical properties.—THE ALPHA CORP., GREENWICH, CONN.

Paint Selection Chart—Helps in determining the proper paint product to meet specific requirements. It lists type of surface to be painted and the various types of paints available. After each paint product, the chart provides information on its applicational ability over rusty or damp surfaces, brush and spray ability, recommended primer, physical and chemical properties, drying time, thinner, average coverage, average material cost per sq. ft., and number of colors in which it is available. Also included is a check list for comparing the characteristics of the various products for specified requirements.—THE WILBUR & WILLIAMS CO., 43 LEON ST., BOSTON 15, MASS.

Belt Conveyors—"Move More for Less" is the title of a 32-p. belt-conveyor bulletin. It presents information on stationary, portable and 16 types of special-purpose belt conveyors—both troughed and flat belt. Included are future applications and methods of selection of belt conveyors; dimensions, weights, and specifications for standard head, tail, and intermediate sections; lattice, channel, and timber frames; and terminal machinery. Among the advantages listed in Bulletin 1400 are the use of Life-Sealed ball-bearing idlers, exclusive splice plate which makes frame joints as strong as the rest of the lattice section, steel shafts, and anti-friction bearings on all terminal machinery, solid steel pulleys, turned and uniformly crowned.—LIPMANN ENGINEERING WORKS, 4603 W. MITCHELL ST., MILWAUKEE 14, WIS.

Concrete Vibrators—Electric and pneumatic concrete vibrators, in a wide range of sizes and styles, are described in Bulletin 814. This illustrated catalog contains information on vibrator selection, design development, construction advantages, care of equipment, features of operation, and other vibrator data.—CHICAGO PNEUMATIC TOOL CO., 8 E. 44TH ST., NEW YORK 17, N. Y.

Auto-Truck Production—A photographic tour of Autocar production facilities is presented in a new 20-p. catalog. Bulletin No. 5491 is an illustrated description of the men, materials, and machines engaged in producing Autocars and tractors. It features pictures showing the research, development, and quality control that go into Autocar units.—THE AUTOCAR CO., ARDMORE, PA.

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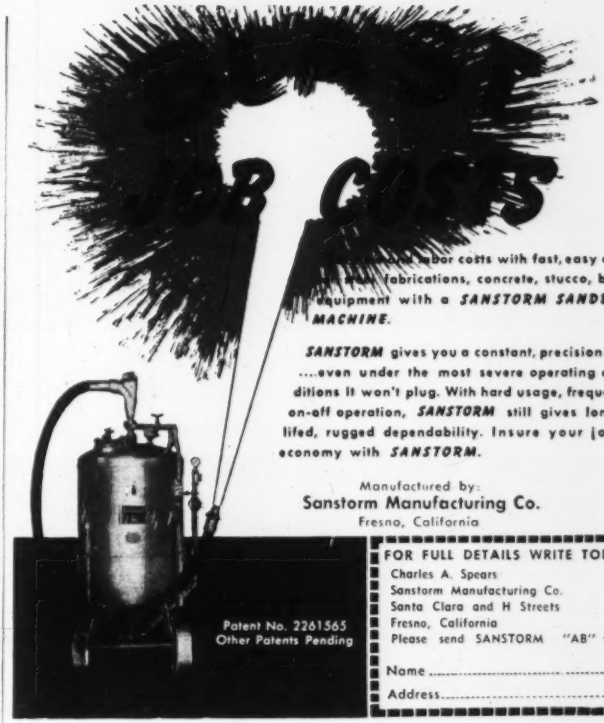

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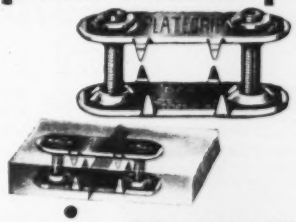

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READER COMMENT

Weir Formulas Compared

Sir: In the July 7 issue (p. 65), F. T. Mavis has presented some very interesting comparisons of flow over submerged thin-plate weirs from experiments made in 1948 at Carnegie Institute of Technology and those of Poleni at the University of Padua, Italy, made 237 years earlier. The author's preservation of the old linear units of lignes and then expressing flow in cfs. (Fig. 2 a and Table 1) borders on the bizarre.

Prof. Mavis has failed to mention the excellent work done by James R. Villemonte at the University of Wisconsin on the same subject (Submerged-Weir Discharge Studies, ENR, Dec. 25, 1947, p. 54). Perhaps this escaped his attention, but the editor cannot make that excuse for failure to mention Prof. Villemonte's work in his Editor's Note.

A comparison of the basic formulas developed by Villemonte and Mavis deserves mention. The submergence factor S developed by Mavis is functionally equivalent to the Villemonte factor S^n.

The submergence factor of Mavis is given by his equation (2). Since Villemonte used the superposition principle in which actual flow Q is related to free flow corresponding to head water depth H minus free flow corresponding to tailwater depth h, there results

$$a\frac{\sqrt{h}}{A\sqrt{H}} = f\left(\frac{Q}{Q_f}\right) = f(S) \text{ (Mavis)}; \quad \frac{Q}{Q_f} = S^n \text{ (Villemonte)}$$

in which Q_c is free counter flow corresponding to h and Q_f is free flow corresponding to H. Comparing equations for submerged flow by the two authors, we have

$$\frac{Q}{Q_f} = 1.00 - \left[0.45\,S + \frac{40}{2^{(10-10S)}}\right] \text{ (Mavis)} \quad (4)$$

$$\frac{Q}{Q_f} = (1 - S^{1.5})^{0.385} \text{ (Villemonte)} \quad (5)$$

The complex should always give way to simplicity. The Mavis example of the parabolic weir gave submergence factor of 0.25 and a discharge of $Q = 0.88\,Q_f$.

The Villemonte formula applied to the same example gives

$$\frac{Q}{Q_f} = \left[1.00 - \left(\frac{0.75}{1.50}\right)^{1.5}\right]^{0.385} = (1.00 - 0.50^{1.5})^{0.385}$$

The submergence factors are the same 0.25, and the exponent of the submergence factor for parabolic weirs is $n = 2$, hence

$$Q = 0.89\,Q_f$$

which appears to be just as reliable as the Mavis value of .88 read from his Fig. 6(c).

J. C. STEVENS
Consulting Engineer
Portland, Ore.

(Omission of the reference to J. R. Villemonte's article was a regrettable oversight for which the editor takes the blame.—EDITOR)

Pioneer Overlooked

Sir: L. Coff states in his interesting article on prestressed concrete in ENR Sept. 1, that bonded prestress was initiated by Freyssinet and perfected by Ewald Hoyer in Germany and that Hoyer has placed bonded prestressed concrete on an industrial basis for short spans.

Although it has been the general opinion in this country and in Europe that both these men initiated prestressing with high-tensile strength wire, actually the method was originated by Karl Wettstein, who made his first experiments in 1919. He received a German patent No. 384,009 on Jan. 27, 1921, and also a French patent in 1925. Wettstein manufactured, sold and erected prestressed concrete slabs reinforced with piano wires that were used mostly for roofs, walls and partitions on all kinds of buildings in 1921. These slabs were manufactured in a plant in Brux, Sudetenland.

He designed his slabs according to formulas that are in use today. In 1922 and 1923, he provided circulars of these "Stahldrahtarmierte Betonbretter" (steel-wire reinforced concrete slabs) Wettstein Bretter, giving a full description of the characteristics and the load-carrying capacity of these slabs, with their remarkable new properties. In 1924, the slabs were tested at the Technische Hochschule in Vienna. Due to the great demand for his products, Wettstein erected a second plant in Dux, Sudetenland in 1925. His plants were visited around 1927 by parties who were interested in using his methods.

In 1936, Wettstein moved the equipment of the Brux plant to Slovakia, where there was great building activity. He soon encountered trouble with the Nazi machine, which protected other manufacturers who claimed to be the inventors. In 1939, he had to close his plant because for political reasons he was unable to get raw materials.

At the end of the war, Wettstein had to leave Czechoslovakia with several hundred thousand other Sudeten Germans and is now a refugee in the Bavarian Mountains. Several concerns are at present installing equipment to make prestressed concrete members according to his system and under his license.

E. WALTER
President
Porete Manufacturing Co.
North Arlington, N. J.

Stadium Repair Costs

Sir: In my article, "Deterioration of Concrete Stadiums Can Be Avoided by Good Design," which appeared in ENR June 23, the following statement occurs:

"The cost of painting a steel stand of this type might run 30¢ per seat per year. This would not be a high maintenance cost if compared with the maintenance of some of the older concrete stadia, such as the Cornell Crescent, Princeton Stadium and the Yale Bowl where extensive chipping and replacement have been necessary. However, this would look very high compared with the maintenance cost at Rutgers where modern design and construction methods have reduced maintenance costs in the first decade to practically nothing as far as the concrete is concerned."

This statement was not meant to infer that the cost of repairs to each stadium referred to was 30¢ per seat per annum.

Further data at hand shows that taking into account the full life of the stadiums, the costs have been for Yale and Cornell something like 1½¢ and 3¢ per seat per annum respectively. Princeton costs have been much higher.

ELWYN E. SEELYE
Consulting Engineer
Seelye, Stevenson & Value
New York, N. Y.

Correction

An article in ENR's Sept. 22 issue, p. 26, concerning the construction of a new high-level bridge over the Schuylkill River, omitted the fact that caisson sinking and pile-driving for sewers are being carried out by the Felhaber Pile Co., Inc., New York City, under a subcontract with Foley Brothers, Inc., of Pleasantville, N. Y.

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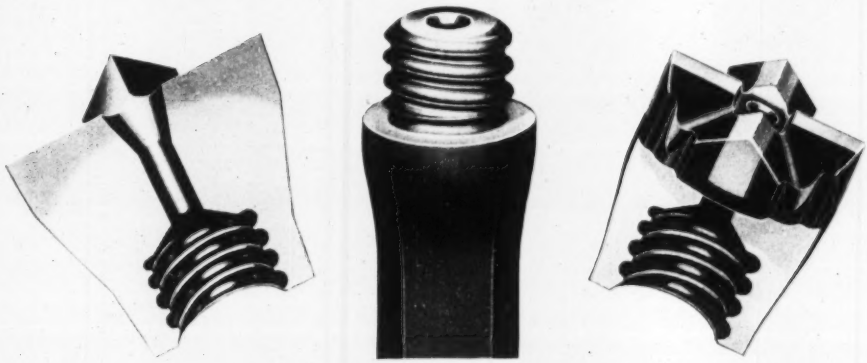

America's smoothest drill team. Left: Multi-use Threaded Timken Rock Bit. Right: Carbide Insert Threaded Timken Rock Bit. Center: Shouldered and Threaded Timken Steel. Both bits interchangeable on the same threaded steel.

In December, 1947, Perini, Maney, Walsh & Rugo construction companies, Boston, Mass., were awarded a $9,530,000 contract for the construction of approximately 5 miles of 12-foot finished water tunnel by the Boston Metropolitan District Commission. When completed, this tunnel will have capacity to carry 200,000,000 gallons of water daily into the Boston Metropolitan Area.

Timken carbide insert rock bits were used in excavating 200,000 cubic yards of tunnel rock and the contractors expressed complete satisfaction with their performance and economy.

In August 1948, the same contractors were awarded a contract for the construction of the Squirrel Hill vehicular tunnel, Pittsburgh, Pa. This job involved the driving of twin 36′ x 26½′ horse-shoe tunnels 4,200′ long. Timken standard steel bits were selected in this case to provide the lowest cost per foot of hole in excavating 250,000 cubic yards of rock.

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